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(SERIES I.)

# FORESTS OF BRITISH GUIANA.

## DETAIL REPORTS.

*3844.7

### THE FORESTS OF

### THE NORTH-WESTERN DISTRICT

### OF THE

### COUNTY OF ESSEQUIBO.

### Forest Districts 1-4.

BY

C. WILGRESS ANDERSON, I.S.O., F.G.S., F.R.G.S.,

FORESTRY OFFICER.

PUBLISHED BY THE DIRECTION OF

HIS EXCELLENCY THE GOVERNOR.

DEPARTMENT OF LANDS AND MINES,
Georgetown, Demerara.

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AUGUST, 1912.

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# REPORT

ON

# THE FORESTS OF THE NORTH-WESTERN DISTRICT

OF THE

# COUNTY OF ESSEQUIBO.

## FOREST LANDS.

Areas.—The easily accessible forest lands of the North-Western District, which for the purpose of this report includes the country between the Venezuelan boundary and the Pomeroon river,* are estimated to cover an area of about 5,380 square miles. In the absence of detailed maps and forest surveys, it is impossible at present to obtain any estimates approaching accuracy of the area of the different classes of forests in the district, but as approximately estimated, about two-fifths of the area of the forest lands are occupied by the forests of the swamp lands, and about three-fifths by those clothing the slightly elevated or hilly country.

Litoral Woodlands.—The coast lands extending from the mouth of the Pomeroon are almost entirely covered with belts of courida (*Avicennia nitida*, Jacq.), which towards the mouths of the rivers gives way to mangroves, (*Rhizophora Mangle*, Linn.), and (*Laguncularia racemosa*, Gaertn.). Estimates made in the courida forests on this coast indicate that the average number of trees of all sizes (not including very young ones) is about 152 to the acre, 57 per cent. of these being from 20 inches upwards in circumference, and having an average girth of 27 inches. But in many places dense growths of young slender-stemmed trees of this species occur, sometimes intermixed with small trees called kaiara, and not identified botanically. Occasionally courida trees of large girths but of no great height are to be found; the largest I have seen was a forked one which measured 209 inches in circumference, breast-high. A few small tracts of open lands of a boggy nature occur at places along the coast. They are usually covered with the giant swamp fern (*Acrostichum aureum*, Linn.), which in the more open woodlands around them, form a dense undergrowth.

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* Includes forest districts Nos. 1–4 having an area of 8,340 square miles. Of this area about 200 square miles consist of small scattered swamp savannah lands.

Climbing over these ferns in the open parts an apocynaceous vine (*Echites biflora*, Jacq ) is frequently seen, and in the vicinity around, corkwood (*Pterocarpus Draco*, Linn.), trees are to be found in more or less numbers. The presence of corkwood indicates that the coast has been eroded at these places.

On the narrow banks of sand and shell thrown up in places on the outer edge of these coast lands, the vegetation is generally more or less of an open character, but in some parts there are dense, low growths of the nicker bush (*Caesalpinia Bonducella*, Fleming,) and in others the maho (*Hibiscus tiliaceus*, L.,) forms a bordering growth.

On the muddy swamps at the mouth of the rivers over which the tide flows regularly, leaving the bare mud exposed at low water, the mangroves flourish, and form extensive pure forests They continue for many miles up the river courses, for long distances beyond where the water ceases to be salt.

## FORESTS OF THE SWAMP LANDS.

### WAINI RIVER.

In the vicinity of the Luri creek on the Waini river, crabwood occurs scattered about in varying quantities in the mangrove forests, and a good deal of this wood has been obtained in that locality, where, as the lands are periodically inundated by high tides, transportation of the logs to the river is rendered easy.

Mangroves continue to form the outer fringe of the forests of Class 2 bordering the river from below the mouth of the Baramanni creek as far up as the junction of the Barama river. Behind this fringe innumerable slender-stemmed manicole palms raise their feathery plumed crowns. Beyond the Barama mouth the lands are slightly higher, and the forest clad banks of the river are bordered by corkwood and wild cacao, together with other aquatic or sub-aquatic river side growths, such as the aliku or benda, which form an almost continuous low border along the edges of the water on these parts of the river for long distances upwards. Above Yahu-hina creek, mora trees commence to appear, and these trees intermixed with wild cacao, sarebebe or water wallaba, and manicole palms (*Euterpe edulis*, Mart.,) mostly compose the bordering vegetation of the river as far up as, and beyond, Kwabanna Indian Settlement. In the vicinity below the itabu, known as "Two Mouth," the forest trees along the edge of the river consist chiefly of mora intermixed with trysil in lesser numbers.

Thence upwards, as far as Maka Falls, these two species are by far the commonest in the forests clothing the slightly elevated banks of reddish yellow clay, particularly the mora, which is most abundant. Here and there, throughout most parts of the river, a crabwood tree may be spotted in the forests, but most of them near to the river side have been felled, leaving only the remaining stumps to indicate where they once stood.

Above the itabu called "Shortcut," on the made up lands forming shallows at the converse bends of the river, small groups of Long John trees (*Triplaris surinamensis*, Cham.) rise prominently above the low growth of swamp ferns and other vegetation covering these places. On the upper parts, parakusan with its peculiar flanged trunk is commonly seen, and appears to be particularly abundant on this river. Occasionally the high spreading crown of a bullet or balata tree can be seen from the river, and may be distinguished by the russet brown colour of the under foliage.

Above Maka falls, less mora is seen, and where hills approach the river and the banks are higher, they are clothed with mixed forests, the commonest trees noticed in these parts being sarebebe, haiariballi, kakaralli, baramalli and hurawassa, but in the lower situations in the vicinity of the junction of the Imotai creek, mora continues to be the predominant tree.

As far down as the junction of the Barama river, wherever the banks are slightly higher, but more particularly towards the upper parts where mora predominates, the forest trees bordering the river are clothed, in many cases, from the very top of their crowns downwards with a growth of climbing and trailing plants, which in some cases descend in festoons, while in others they abound to such a degree as to form dense curtains completely hiding the trunks and limbs of the trees that support them. Amongst these too are predominating species, one of which, a rubber-producing climber called by the Arrawak Indians on the Courantyne river "Kamuru," (*Odontadenia speciosa*, Benth.), abounds on this river and its tributary the Barama. The rubber obtained from this plant appears to be of fairly good quality, but even if proved to be of commercial value, it offers but little chance of being profitably gathered, for, on account of the smallness of the stem, which seldom exceeds three inches in girth, the latex can only be collected in small quantities after much time and labour.

The marginal vegetation of aquatic plants bordering the rivers as described, is usually of so dense a character that without much cutting a landing cannot possibly be effected, wherever this kind of river-side growth is found. Along the banks of this and all other rivers the forest trees are always found growing much more abundantly and closely together than on the lands immediately behind, and so close is the growth in places, that two or three trees are often seen touching each other at their bases, one or all of which frequently hang, or project out, over the water. The density of the vegetation generally in these situations is unquestionably due to the greater access of light afforded by the open river space.

As seen from the river, the character of the marginal vegetation is an excellent indication of the particular class of forest covering the bordering lands, and on account of the monotonous occurrence of the same subjects over long distances, each change in the vegetation, although gradual, can scarcely pass without notice, even to the unpractised eye. In this way the river-side vegetation affords a ready means of broadly defining where one class of forest ends and the succeeding class begins, so that by noting each successive change, a traveller ascending any of these rivers may estimate approximately the extent of each class of forest that may be passed. In the absence of any definite marks, to those acquainted with these regions, each such change observed denotes another stage accomplished in the monotonous journey inland.

The vegetation bordering all the rivers of the North Western District is of so similar a character that the foregoing brief sketch of this vegetation on the Waini river will suffice to give an idea of them all. Excluding the Pomeroon and Maruka rivers, this river is the only one in this part of the colony which, throughout its entire course to the sea, flows through British territory, and as all of the different classes of forests are represented on the bordering lands, it has therefore been selected as being the most typical one for this purpose. To similarly describe each of the rivers in these parts would, to a great extent, be mere repetition. A general description of the principal topographical features of each of the different rivers, and the forest lands bordering them, together with such notes on the characteristic vegetation generally, as seen on each particular river, will suffice to indicate the situation and distribution of the various classes of forests obtaining on each of them, and also serve as an introduction to the forest types of the district which follow subsequently in this report.

The names of the places where narrow spurs of hilly lands or where slightly elevated lands approach the rivers, have been mentioned in the case of each of the rivers described. The slightly elevated lands where they extend near to the river banks are important as affording means of access, without crossing the river swamp lands, to the large areas of forests situated between the rivers.

This is especially the case where overland transportation of timber from these forests to the river has to be considered. These higher situations on the rivers are usually widely separated from one another, and have in the past been the sites of Indian settlements, as they are the only places nearest to the river that are above flood level, and therefore naturally suitable for habitation.

The original growth of forest on them was formerly cleared and is now supplanted by a second growth or "Mainap."

With the exception of the felling of crabwood in situations affording easy means of transport, or where timber has been required for mining or placer operations in the gold bearing areas, no attempt has so far been made to exploit the extensive forests of this district for timber.

With regard to the possibilities of establishing timber industries in this district and the extension of these in the colony generally, perhaps the most important feature disclosed by the estimates put forward in the forest types accompanying this report is, that about 70 per cent of the timber trees in these mixed forests are made up of from 9 to 10 kinds only; should most or all of these commonest kinds be found to have a commercial value or to be marketable, then large quantities would be available with a minimum of overland transportation.

## THE AMAKURA RIVER.

From its head, the river has a north-easterly course of about 47 miles to the mouth of its tributary the Haiowa, and as far down as this point it forms part of the western boundary of the colony with Venezuela.

Below the mouth of the Haiowa creek, the Amakura river flows entirely through Venezuelan territory, about 43 miles to the Atlantic Ocean, which it enters near the eastern end of the delta of the Orinoco river.

The Amakura river is navigable for steam launches as far up as "La Launcha," about 62 miles from its mouth, where the river is about 75 feet wide.

Beyond "La Launcha" the water runs with a very strong current, and the river splits up at certain places into several narrow channels or "itabus." These upper parts are overhung by branches projecting from the bordering forest trees, and can only be ascended by boats. The first falls are at San Victor, about 70 miles from the mouth, beyond which the river is obstructed by other falls, the longest series being those at "Juanita," at the foot of which there are paths through the forest on both sides of the river leading to its source and across to the Kaituma river.

At the head of the Yarikita creek, which enters the river about 69 miles from the mouth, there is a portage nearly a mile in length over which boats are transported to the head of the Aruau, a tributary of the Aruka river flowing to the Barima river.

Hilly forest-covered lands approach the river on both sides of the Yarikita creek near its mouth, and again at San Victor falls where the banks are high and steep. Above San Victor the river valley widens and contains small open expanses covered with low bushes and ferns, with here and there a trumpet tree or buba palm (*Iriartea exorhiza*). At the series of cataracts and falls known as Juanita, hilly forest lands border the river, and thence upwards the banks are mostly high and clothed with forests, in which black balata and sapium rubber trees grow scattered in places, while groves of bullet or balata trees were once to be found occupying the tops of the hills at some distance in from the river.

Between the hilly ridges above and from San Victor downwards, the lands bordering the river are mostly swampy and covered with forests in which trysil is conspicuous, white cedar or warakuri usually of slender stems common in the more swampy parts, and corkwood and sarebebe most abundant amongst the bordering trees. Mora is scarce and mostly absent. Truli and manicole palms, especially the former, are in great abundance. In places, a few red cedar (*Cedrela odorata*, Lin.,) were noticed, and sapium rubber trees (*Sapium Jenmani*, Hemsl.,) are widely scattered.

## THE ARUKA RIVER.

The Aruka is the first large tributary entering the Barima river. Throughout the greater part of its course, the bordering lands are covered with Class 1 of the swamp forests. On the lower reaches the bordering trees are mostly mangroves, while manicoles and truli palms are abundant. Amongst the characteristic swamp loving trees in these parts, the manni is rendered conspicuous when flowering by the deep crimson colour of its flowers. Other common trees are the trysil, wadaduri or monkey pot, coffee mortar or naharu, corkwood and dautaraba, while crabwood, white cedar or warakuri and kurakai occur in lesser numbers. Sapium rubber trees are found occasionally in places but mostly where the land was formerly cleared for cultivation and subsequently abandoned. Along the higher reaches konaheri or wild cacao intermixed with corkwood and sarabebe form the bordering trees. On the swampy lands the characteristic trees of the forests are kakaralli, crabwood, white cedar or warakuri and manni. On the slightly higher banks above Kwara creek mora occasionally appears.

The forests of the slightly elevated lands are first met on the series of separate hills known as the Maburima or Aruka Range. This range of hills which is the nearest to the coast, extends from near the junction of the Aruka and Barima rivers, to the sources of the Aruau river, a tributary of the former river. Most of these forest clad hills rise to a height of about 200 feet above the sea level. The lateritic soil on them is derived from the decomposition of basic rocks of which they are mostly composed, and they afford an excellent example on the subject of the influence of elevation in determining the character of the two great sub-divisions of forests previously described in this report.

The hills forming the north-eastern termination of this range have been cleared in the past for cultivation purposes, and the original forest on them supplanted by "Mainap" or second growth. This second growth in its turn is periodically re-cleared for cultivation by the resident Indians, who, on account of the natural drainage they afford, have from time immemorial made these hills their habitat. In most of the older clearings or "Mainaps" on these hills sapium rubber trees are to be found growing. On the one approaching nearest to the river, known as Issororo Hill, (or more correctly "Ho-sororo," meaning in the Warrau language, "falling water," from the falls in the creek of the same name which rises on it), an experimental rubber station has been established by the Government.

At a place known as "Hobo" much higher up the river, hilly lands clothed with forests approach near to the river on both banks. In these forests on the right bank at about three and a half miles inland from Hobo, a small grove of greenheart was discovered in which about twenty of these trees were counted.

With this exception, greenheart was not known to occur, and was generally believed to be non-existent in the Barima-Amakura District previous to my inspections. The only other locality so far westward in the colony where this wood is known to grow in small quantities is on the hilly lands in the vicinity of St. Bede's Mission on the Barama river. The hilly forest lands extend from Hobo upwards at varying distances from and within sight of the river as far up as Kwara creek on the right bank, and "Mamura" on the left bank. At the latter place these lands again approach close to the banks of the river.

## THE KAITUMA RIVER.

Swamp forests of Class 2 cover the flat swampy lands extending along both banks of the Kaituma river as far up as the head of the tide, a distance of about 40 miles from the mouth along the course of the river. A monotonous recurrence of the same subjects forms the bordering vegetation along this portion of the river. The bordering trees along the lower reaches are mostly mangroves and corkwood, both of which extend as far up as the vicinity above the creek connecting with the "Itabu" or waterway by means of which canoes may gain access to the Aruka river.

On the higher reaches as far up as the tide flows the bordering trees consist principally of sarebebe, wild cacao or konaheri, and warakuri or white cedar, the last mentioned being mostly of slender stems.

Amongst the various species composing the low bordering growth of sub-aquatic plants, the "Bundari Pimpler" (*Drepanacarpus lunatus*, G. F. M. Mey,) may be specially mentioned as it is by no means as abundant on the rivers of this District as on those of the other parts of the colony. It is a thorny plant of so dense a growth as to prevent a landing being made except with great loss of time and much painful labour. Throughout this portion of the river the trees nearest the banks are clothed with masses of trailing plants and vines. Behind the bordering growth, the commonest trees seen in the forests are the trysil, coffee mortar or naharu, kurakai, kakaralli, manni and dalli, while here and there one of the scarcer species of the class such as the buhurada or maho, etc., may be distinguished. On the upper tidal reaches the sapium rubber tree is occasionally seen. Mora is scarce and mostly absent. Truli and manicole palms are in great abundance.

Above Sebai, the largest tributary entering on the left bank, the low bordering growth diminishes, and trees approach nearer to the banks of the river. Beyond the lead of the tide the river divides into numerous "itabus" or waterways, all of which are obstructed by "tacubas" or fallen trees. These narrow waterways are mostly overshadowed by the forest trees, and in the absence of light the bordering vegetation, such as occurs on the wider parts of the river below, entirely disappears, the trees rising directly from the edges of the water. Palms, with the exception of a few low-growing kinds, such as the *Bactrics*, spp., are practically absent in the forests. The flat lands bordering the river, which extend as far up as the foot of the first falls, are mostly inundated in rainy seasons, and covered partly with swamp forests of Class 4, in which mora occurs in much less quantities than on the larger rivers of the district, while in other parts forests of the slightly elevated lands intervene where the banks are higher.

The commonest trees seen in the forests of these upper reaches of this river are kakaralli, kurakai and hiari-balli intermixed with sarebebe, crabwood, baramalli and kauta-balli with corkwood, waikey and maho in lesser numbers, while in the lower situations coffee mortar or naharu, trysil, aramatta and sura-danni are noticeable.

Amongst the scarcer species sapium rubber trees are to be found growing now and again. Below the falls, red cedar trees grow scattered along the river banks in situations accessible to light. Above the first falls the river banks are mostly high and clothed with forests of the slightly elevated lands.

On the upper reaches of the Anabisi, the largest tributary on the right bank, there are floating savannahs of considerable length but of comparatively narrow width. In these savannahs or natural reservoirs of fresh water, as in the case of most of these savannahs in the colony, the deeper parts or channels are marked out on both sides at varying intervals apart by a single line of diminutive slender stemmed warakuri or white cedar trees.

The forest on the swampy lands in the vicinity of the sources of the creek consists almost entirely of many species of slender stemmed swamp-loving trees and the streams are mostly bordered by diminutive corkwood trees.

## THE BARIMA RIVER.

At the mouth of the Mururuma creek on the southern bank of the river, about five miles below Morawhanna, and about 48 miles from its mouth, the Barima river leaves the colony and flows through Venezuelan territory.

The settlement of Morawhanna is situated just above the junction of the Mora passage on the right bank of the Barima river, and about 52 miles from its mouth. Opposite Morawhanna, on the same bank of the river, is the Government Agency, where the Commissioner of the North Western District resides and has his headquarters. As far up as Mount Everard, the river banks are low, being below the level of high tides. The influence of the tide does not extend beyond a few miles below the mouth of the Koriabo creek, and it is only at very high tides, or in times of severe drought, that the salt water ever reaches that part of the river within the boundary of the colony.

From Georgetown, the capital, there is a weekly steamer service *via* the Waini river and Morawhanna passage, the steamer terminus being further up at Mount Everard, about 42 miles above Morawhanna, where two isolated hills rise suddenly on either side of the river above the low-lying swampy river banks. Below Mount Everard, the Muruiwa, a tributary on the right bank, is connected by an "itabu" or waterway with the Morebo creek, by means of which boats may pass from the Barima to the Waini river.

Above Mount Everard, the Barima river is navigable for the greater part of the year as far up as the foot of the Mekorerusa Falls, the first that occur on the river, and about 116 miles above Morawhanna. Launches ascend the river regularly, except in very dry seasons, from Mount Everard to Arakaka, the principal settlement of the gold fields in the vicinity around, and distant about 67 miles from the steamer terminus at Mount Everard. In very dry seasons, the river is only navigable for launches as far up as Koriabo, about 22 miles above Mount Everard, and on these occasions the journey must be continued by boats.

### Forests of the Swamp Lands on the Barima River.

The low-lying swampy bordering lands, as far up as the tide extends, are clad with forests of Class 2. On the lower reaches between the boundary line and the mouth of the Aruka, this has been mostly cleared for the establishment of many small cultivated tracts or holdings granted by the Crown to the residents in the district. The marginal trees are characteristic of this class of forests, and consist mostly of mangroves intermixed higher up with such others as corkwood, wild cacao or konaheri, and sarebebe, with a dense outer fringe of low sub-aquatic vegetation, consisting of many species, amongst which the bundari occur in places. Behind the bordering trees, truli and manicole palms grow in great abundance. Mora first appears scattered along the river above the mouth of the Aruka river. Above the mouth of the Koriabo creek, the mangroves are scarcer, and are supplanted by other bordering trees, and as the banks are raised higher mora becomes more plentiful, Intermixed with the mora in these higher swampy parts, white cedar or warakuri, and takariwa or hua-hua are conspicuous. On the slightly higher sandy bordering lands around Mount Everard, soft wallaba prevails in the forests. In the vicinity around the junction of the Koriabo Creek, the swamp forests of Class 2 are gradually succeeded by those of Class 4, in which mora trees of great height are predominant.

With few exceptions, where the hilly spurs approach the river, mora forests extend along the bordering lands beyond Sebai, where, in the vicinity of the mouth of the Tenapu creek, below "Adam's landing," the mora diminishes in numbers, and where the banks become higher this class of forest disappears and gives way to forests of the slightly elevated lands. Between the hilly spurs, the lower bordering river lands are mostly covered with mora forests as high up as, and beyond the first falls.

In both the classes of swamp forests mentioned above, crab-wood occurs scattered or associated in groups of varying numbers.

## Forests of the slightly elevated Lands on the Barima River.

The two isolated hills of Mount Everard and Mount Terminus were cleared long ago of original forests, and with the exception of the small areas now used as sites for the buildings of the steamer terminus, they are entirely re-covered with second growth or "Mainap," in which the trumpet tree is paramount intermixed with other trees of rapid growth such as oralli or blood wood, (*Vismia* sp.), which are characteristic of the mainap growth The forests of the slightly elevated lands begin to mostly border the river in the vicinity below Arakaka, although they occur in places as far below as Sebai. Narrow spurs extending from the hilly lands approach near to the river at the following places :—

(1.) At Mount Everard and Mount Terminus on both banks.

(2.) At Koriabo on the right bank.

(3.) At Betsy hill, just below Sebai on the left bank.

(4.) At Warimba and Red hill, immediately above that place, both on the left bank.

(5.) At Arakaka and vicinity around, on the right bank.

(6.) At Monkey hill, 3½ miles above Arakaka, on the right bank.

(7.) At "Eclipse" or Mekoreusa falls, on both banks.

## THE MURUIWA CREEK.

By means of this creek and a waterway boats can pass from the Barima river *via* the Morebo creek to the Waini river.

Swamp forests of Class 2 cover the border lands on the lower reaches, behind which are forests of Class 3, in which palms form an almost pure forest. On the upper reaches slender stemmed swamp loving trees intermixed with prickly bactris palms form the bordering vegetation, behind which the swampy lands support a lower similar growth of vegetation. On the sandy lands near the "itabu" and on the upper tributaries of the Morebo soft wallaba grows plentifully. The Morebo creek is bordered by forests of Class 2 in which, on the upper reaches, mangrove and mora are absent, the bordering trees being sarebebe and wild cacao, while manni is common in the forests behind.

## THE BARAMA RIVER.

The Barama river throughout its whole course flows entirely through forest-clad country. From its junction with the Waini river as far up as the Wuri or Huri creek, where the tide ends, the banks are generally flat and mostly swampy. About a mile above the mouth of the Waikarabi creek, by a portage on the left bank of about 200 yards in length, boats can be taken from the Barama to the so-called Waiwa "itabu," which flows to the Waiwa, the first large tributary situated much lower down the river.

Above the Huri creek, the banks rise for a couple of feet or more above the ordinary level of the river, and it is only at long intervals apart that hills approach the river.

The Towakaima Fall is about 15 feet high, and forms the first large obstruction to the navigation of the river. Small launches are run, when there is sufficient water in the river, as far up as the foot of this fall, around which there is a portage for boats on the right bank of the river. On the side of the river opposite the portage, the Barima-Barama road terminates. This road which commences at Arakaka on the Barima river, passes through the principal gold fields of the district, and is about 29 miles in length.

The Barama river is subject to sudden floods. In the height of the dry season it becomes very shallow, and its course is then much obstructed by "tacubas" or fallen trees. During such times it is only navigable for launches as far up as the mouth of the Huri creek.

### Forests of the Swamp Lands on the Barama River.

From its mouth to the vicinity above Kurasani creek the lands on both sides of the river are covered with swamp forests of Class 2, in which the highest trees are generally of mora, the bordering trees being characteristic of the class.

Above Kurasani, except at the places where narrow hilly spurs approach the banks of the river, forests of Class 4, in which mora trees of great height predominate, continue along the tortuous course of the river as far up as Towakaima Falls.

In the forests on this part of the river, crabwood is more plentiful than lower down. Almost all of the trees of this wood that were growing near the edges of the water on both banks of the river have now been felled for timber by the Indians.

In the forests bordering the Wenamu creek, a tributary on the right bank, cedar trees have been found growing scattered as well as sapium rubber trees which are mostly widely distributed in these virgin forests.

The low lying lands on both sides of the Waiwa creek, as far up as the junction of the "itabu" branch, are also covered with mora forests, in which there is little, if any, crabwood. Above the "itabu" the lands are very swampy and the forest vegetation consists mostly of slender stemmed trees and manicole palms, amongst which are scattered larger trees of mora, trysil and arisaura.

## Forests of the Slightly Elevated Lands on the Barama River.

These first appear in this locality on the slightly elevated lands and isolated hills which extend from the upper parts of the Waiwa creek towards the higher reaches of the Morebo creek. The soil on these lands consists mostly of yellow sand while iron stone gravel and rocks appear in places on the hills. The hills are separated by creeks and stretches of swamp lands in the forests on which mora mostly prevails.

In these forests, as is usually the case, kakaralli and kautaballi are the dominant species, and "Black Balata" trees are occasionally seen. The forests on the slightly raised lands near the Waiwa creek have been cleared in parts for cultivation by resident Indians of the Warrau tribe.

Hilly spurs of land clothed with these types of forests approach near to the banks of the Barama river at the following places :—

(1.) In the vicinity above Kurasani, at St. Bede's Mission, where a hill of red earth rises steeply to a height of about 60 feet above the river. From this place hills extend from the river for a distance of about two miles across to the head waters of the Waiwa itabu. In the forests on them small groves of greenheart occur in places. Near the river the forests have been cleared in parts for residence and cultivation by Indians living at the Mission. Almost opposite St. Bede's there is a sloping hill on the right bank of the river.

(2.) On both banks in the vicinity of "Kokerite" higher up the river, where a foot path leads from the Barama to the Imotai, a tributary of the Waini river.

(3.) At Winambu or "Bamboo Hill" on the left bank.

(4.) In the vicinity of Parapemoi on both banks.

(5.) At Kariaku in the vicinity of the mouth of the Teki creek, on the left bank.

(6.) On both banks in the vicinity around Ianna.

(7.) At Aranka and above on both sides of the river.

(8.) At Panther landing on the left bank, where high hills between the Barama and Barima rivers occur.

(9.) At the Towakaima falls, where the banks are high on both sides of the river.

## THE WAINI RIVER.

The Mora passage forms a deep and navigable waterway about 7 miles in length on the southern side of the Waini river about 3 miles from its mouth, through which steamers can pass into the Barima river at Morawhanna.

The bordering river growth and swamp forests on this river have already been described. The forests of the elevated lands are first met on the hilly lands which rise suddenly from the water's edge on the right bank, a little below the junction of the Barama river.

The forests on the hills nearest the river at this place have been cleared for the establishment of a saw mill and for a church. Slightly elevated forest-clad lands and isolated hills of no great height extend from the river at this point towards the upper parts of the Kanya-balli creek, and also at no great distance from the river between the smaller streams flowing to the upper Waini river approaching nearest to the river at Sikarahanna creek.

Higher up, these forests extend out to the river banks at the following places, viz.:—

(1.) At Kwabanna, where a sand hill rises on the right bank, the forest on which has been cleared for cultivation and settlements by Indians.

(2.) On the left bank up the "itabu" called "Two Mouth," where the forests slope right down to the banks of the river.

(3.) On the right bank below Mareweru creek, and on the same side higher up near Bakira-rumba creek, at both of which places low cliffs of red earth rise above the river banks.

(4.) Hilly lands again approach the river on the right bank in the vicinity opposite to, and below the Pelibalimba and Turungbang creeks, where rock exposures occur.

(5.) In the vicinity below Maka falls, where the banks are high on both sides, and large masses of granite rocks are exposed.

(6.) At Kasatu or Canister falls and the vicinity around, where the exposed granite rocks are traversed by dykes of diabase. From the foot of the Kasatu falls a path leads over very hilly country to head streams of the Imotai creek, where placer working for gold has for some time been in operation.

## THE BARAMANNI RIVER.

This is the first large tributary met in ascending the Waini river, which it enters on the right bank about 53 miles from the mouth. By way of its tributaries the Biara and Barabara, boats may travel in the rainy seasons *via* the Baramanni to the Moruka river, with which river the Barabara creek is connected by an "itabu" or waterway.

Swamp forests of Class 2 in which bullet or balata trees and sapium rubber trees are widely scattered border the low swampy adjacent lands of the Baramanni river as far up as the mouth of its tributary the Biara creek. Similar forests, lower in height, cover the bordering lands along the Biara and Barabara, where the lands are even more swampy. Manicole palms are in great abundance in these forests. Towards the Moruka, as the floating savannahs are approached, thickets occur of slender stemmed trees consisting mostly of swamp barabara and white cedar intermixed with larger trees of arisaura and prickly bactris palms.

## THE MORUKA RIVER.

From its source near the sea, the Moruka river flows inland to a swampy "floating savannah," where "itabus" or waterways which are navigable for boats, except in very dry seasons, connect the river with the head of the Barabara creek, the waters of which flow *via* the Biara creek to the Baramanni, a tributary of the Waini river.

From the "itabus" the Moruka river continues with a tortuous course through the stretches of savannahs which terminate in the vicinity of Santa Rosa Mission. Thence, as far down as the mouth of its tributary the Manawarin creek, the general course of the river is approximately parallel with the coast. The upper course of the Manawarin creek is connected by an "itabu" with that of the Wakapau creek, a tributary of the Pomeroon river. About 7 miles below the mouth of the Manawarin creek, the Moruka river enters the ocean about 4 miles to the north-west of the Pomeroon river.

At Santa Rosa, and in the vicinity around, low isolated hills rise gently in places above the surrounding mostly open swampy lands. The forests on these hills have been partly cleared and are periodically re-cleared for habitation and cultivation by Indians.

Below Santa Rosa the slightly elevated sand dunes which approach the river at intervals have been similarly cleared and afford homesteads to the Indians who inhabit these parts. The last of these sand dunes occurs at Waramuri Mission, about a mile above the mouth of the Manawarin creek.

Between Santa Rosa and Waramauri, the low-lying lands bordering the river are mostly covered with forests of thin stemmed trees comprising chiefly barabara, arisaura and cork-wood, kwako and white cedar or warakuri intermixed with low lying prickly bactris palms. Here and there, a spreading crooked tree called "Hubaida-arow" or "Big Snake Tree" is conspicuous on account of its larger size and girth.

The intervening flats between and around the low hills are mostly I-te swamps. Below the mouth of the Manawarin creek the lands on both sides of the river are covered with swamp forests of Class 2 downwards to near the mouth. Thence litoral woodlands of mangrove and courida border the river and fringe the stretch of coast lands extending between the Moruka and Pomeroon rivers, on which there are a few small tracts of savannah land.

## LIST OF WOODS.

| VERNACULAR NAME. | BOTANICAL NAME. | SPECIFIC GRAVITY. |
|---|---|---|
| Aeta-balli or Ite-balli ... ... | *Vochisia tetraphylla*, D.C. | |
| Aliku or Benda ... ... | *Pithecolobium latifolium*, Benth. | |
| Arakadak | | |
| Arara or Yarri-yarri (hill) ... | *Anaxagorea* sp. | |
| Aramatta ... ... ... | *Diplotropis brachypetalum*, Tul. | |
| Arisaura ... ... ... | *Pterocarpus* sp. ... ... | 0·72 |
| Ariwiwa | | |
| Aruadan | | |
| Assachi | | |
| Assapoko | | |
| Awasakule or Assakole | | |
| Babura-balli or Ruri | | |
| Balata-balli or Barta-balli ... | ... | 0·84 |
| Bara-bara | | |
| Bara-danni | | |
| Baramalli (two kinds) | | |
| Bara-kara ... ... ... | *Ormosia coccinea*, Jacks., and other species. | |
| Bariri-kutshi | | |
| Black balata | | |
| Black heart | | |
| Blood wood. (See Oralli) | | |
| Bouragie. (See Silverballi, white) | *Nectandra* sp. ... ... | 0·56 |
| Bullet Tree, Burué, Koberu, or Balata | *Mimusops globosa*, Gaertn. ... | 1·00 |
| Bullet Tree, Male | | |
| Buhurada or Burada ... ... | *Parinarium campestre*, Aubl. | 0·93 |
| Cedar, (red) or Kurana ... | *Cedrela odorata*, Linn. ... | 0·45 |
| Cedar, (white). (See Warakuri) | | |
| Coffee Mortar or Naharu | | |
| Corkwood, or Itchiki-boura, or Mutushi | *Pterocarpus Draco*, Linn. | |
| Courida ... ... ... | *Avicennia nitida*, Jacq. | |
| Crabwood, Karapa, or Karaba ... | *Carapa guianensis*, Aubl. ... | 0·47 to 0·7 |
| Dakama ... ... ... | *Dimorphandra latifolia*, Sul. | |
| Dakama-balli | | |
| Dalli ... ... ... | *Myristica surinamensis*, Roland. | 0·36 |
| Dauta-Haba (Fire Mamma) | | |
| Determa ... ... ... | *Nectandra* sp. | |
| Dohiva | | |
| Doro ... ... ... | *Apeiba* sp., Aubl. | |
| Duka ... ... ... | *Tapirira* aff. *guianensis*, Aubl. | 0·48 |
| Dukalli | | |
| Dukalli-balli ... ... | ... | 1·01 |

## LIST OF WOODS.—(CONTD.)

| VERNACULAR NAME. | BOTANICAL NAME. | SPECIFIC GRAVITY. |
|---|---|---|
| Fotui or Phootee | | |
| Fukadi | | |
| Fogel-kop. (See Vogel-kop) | | |
| Greenheart, Biri-biri, or Bibiru | *Nectandra Rodiœi*, Hooker. | 1·06 |
| Hackia | *Ixora* sp. | |
| Haia-haia | *Zschokkea utilis*, Hemsl. | |
| Haiari-balli (pale) | | |
| Do. (brown) | | |
| Haiawa | *Protium heptaphyllum*, March. | |
| Haiawa-balli | | |
| Haimara-kutshi | | |
| Hatti or Sibi-sibi | *Hevea confusa*, Hemsl. and *H. pauciflora*, Muell. Arg. | |
| Howa-danni Kakaralli | *Lecythis* sp. | |
| Hitchia | | |
| Hua-hua | | |
| Hubu, or Hog-plum Tree | *Spondias lutea*, Linn. | |
| Hubu-balli | ... | 0·79 |
| Hubudi | *Anacardium gigantium*, Loud. | |
| Hurowassa | *Pithecolobium trapezifolium*, Bth. | |
| Hurihi | *Humiria obovata*, Bth. | |
| Irriaria-dan | *Cassia multijuga*, Rich. | 0·92 |
| Itiki boura-balli | *Machaerium Schomburgkii*, Benth. *Byrsonima brachystachya*, Poepp. | |
| Ite-balli | *Vochisia tetraphylla*, D.C. | |
| Kabukalli | *Goupia glabra*, Aubl. | 1·00 |
| Kaiarima | | |
| Kairu-balli | *Licania heteromorpha*, Bth. | |
| Karaba. (See Crabwood) | | |
| Kakaralli | *Lecythis ollaria*, Linn., and other species. | 1·03 |
| Kakatara | | |
| Kakatara-balli | ... | 0·67 |
| Kakirio (gauva) | *Psidium* sp. | |
| Kama-danni | *Posoqueria latifolia*, Roem. and Schult. | |
| Kanakudi-balli | | |
| Karaba-balli | *Guarea trichilioides*, Linn. | |
| Karahora | | |
| Keriti. (See Silverballi) | | |
| Kauta | *Hirtella americana*, Linn. | |
| Kauta-balli | *Licania mollis*, Benth. | |

## LIST OF WOODS.—(CONTD.)

| VERNACULAR NAME. | BOTANICAL NAME. | SPECIFIC GRAVITY. |
|---|---|---|
| Kibihi-dan | | |
| Killikowa, or Hill dalli | | |
| Kokeriti-balli | *Sideroxylon* sp. | |
| Kokonshi | | |
| Kanaheri | *Tabebuia fluviatilis*, D.C. | |
| Konoko | | |
| Kupe or kufa | *Clusia* spp. | |
| Korokoruru | | |
| Koyetchi or Black maho | | |
| Kudibuchi. (see Vogel-kop) | *Sideroxylon* sp. | |
| Kuleshiri | ... | 0·92 |
| Kumara, see Tonka-bean | *Dipteryx odorata*, Willd. | |
| Kumaka-balli | *Ficus* spp. | |
| Kumara-mara or Mari-mari | | |
| Kunaribi | | |
| Kununu-balli | | |
| Kurakai | | |
| Kuruburelli, (see Purple Heart) | | |
| Kuyama | | |
| | | |
| Lana | *Genipa americana*, Linn. | |
| Lana-balli | | |
| | | |
| Laukidi-dan or Wild Maran. | *Caraipa* sp. | |
| Letter wood or Snake-wood or Burokoro | *Brosimum Aubletii*, Poepp. & Endl. | 1·3 |
| Locust, or Simiri, or Courabaril Plum (red) | *Hymenaea Courbaril*, Linn. | 0·91 |
| Long John | *Triplaris surinamensis*, Cham. | |
| | | |
| Mabua (broad leaf) | *Plumeria* spp. | |
| Mabua (hill) | *Sapium paucinervium*, Hemsl. | |
| Mabua rubber or Touckpong or Kuina-yek or Ky-cher | *Sapium Jenmani*, Hemsl. | |
| Maho | *Sterculia* sp. | |
| Mangrove (black) | *Rhizophora Mangle*, Linn. | |
| do. (white) | *Laguncularia racemosa*, Gaertn. | |
| Manni | *Moronobea coccinea*, Aubl. | |
| Manari-balli | | |
| Mapara-koni or Hapore-kong | | |
| Mari-mari | *Couratari guianensis*, Aubl. | |
| Marisi-balli or Accouri bruit | | |
| Mora | *Dimorphandra Mora*, Bth. | 1·03 |
| Mora-balli | | |
| Moro-balli or Sand Mora | | |
| | | |
| Naharu. (See Coffee Mortar) | | |
| Naidu. (See Sherabulli-balli) | | |

## LIST OF WOODS.—(Contd.)

| Vernacular Name. | Botanical Name. | Specific Gravity. |
|---|---|---|
| Olu, or Oloo | *Trattinickia rhoifolia*, Willd. | |
| Oralli, or Blood-wood | *Vismia macrophylla*, H.B.K. | |
| do. (little) do. (little) | *Vismia guianensis*, D.C. | |
| Pakuri | | |
| Parakusan | *Swartzia* sp. | |
| Purple Heart or Koruburelli | *Copaifera publiflora*, Benth. | 0·88 |
| Do. Saka | | |
| Repe-repe-shi (a guava) | *Psidium* sp. | |
| Rose of the Mountain or Bimiti topong | *Brownea latifolia*, Jacq. | |
| Ruku-ruku | | |
| Ruri. (See Babura-balli) | | |
| Sakwasepere, or Buck Varnish | | |
| Sawarri-skin | | |
| Sand trysil | *Jacaranda mimosæfolia*, D. Don. | |
| Sarebebe, or water wallaba | *Macrolobium Vaupa*, J. F. Gmel. | |
| Sereba-danni | | |
| Shera-bulli-balli, or naidu | *Sloanea dentata*, Linn. | |
| Shirada waikey | *Inga* sp. | |
| Shirua | *Nectandra cuspidata*, Nees. | |
| Siba-danni | | |
| Silisiliro | | |
| Silver-balli, or shirua-balli, brown. | *Nectandra* sp. | 0·77 |
| Silver-balli, Keriti | *Nectandra* sp. | 0·46 |
| Do. Yellow | *Nectandra Pisi*, Miq. | 0·62 |
| Do. Yekuru | *Nectandra* sp. | 0·68 |
| Do. White or Bouragie | *Nectandra* sp. | 0·56 |
| Simaruba or Simarupa | *Simaruba amara*, Aubl., or *Simaruba officinalis*, Macfad. | 0·43 |
| Simiri. (See Locust) | | |
| Snake Nut | *Ophiocaryon paradoxum*, Schomb. | |
| Sororo-borieng | | |
| Souari or Sawarri | *Caryocar tomentosum*, Willd. | |
| Suradanni | *Hyeronima laxiflora*, Muell. Arg. | 0·81 |
| Takariwa, or Hua-hua | *Hernandia guianensis*, Aubl. | |
| Tibikushi, bastard letter-wood or heart wood | ... | 1·19 (Heart wood) |
| Trumpet Tree or Wanasoro | *Cecropia* spp. | |
| Tatabu | | |
| Trysil or Koro-balli | *Pentaclethra filamentosa*, Benth. | |

## LIST OF WOODS.—(CONTD.)

| VERNACULAR NAME. | BOTANICAL NAME. | SPECIFIC GRAVITY. |
|---|---|---|
| Tauroniro or Bastard Bullet Tree. | *Humiria floribunda*, Mart. | 0·98 |
| Tonka-bean or Kumara | *Dipteryx odorata*, Willd. | |
| Wadaduri or Monkey Pot | *Lecythis grandiflora*, Aubl. | 1·08 |
| Wadara Kakáralli | *Couratari guianensis*, Aubl. | |
| Waibaima | | |
| Waikey | *Inga* spp. | |
| Waikey, Shirada | *Inga* sp. | |
| Waikey, Pirowa | *Inga ingoides*, Willd. | |
| Waikey, Karoto | *Inga* sp. | |
| Wallaba, Soft | *Eperua falcata*, Aubl. | 0·98 |
| Do. Ituri | *E. Jenmani*, Oliver. | |
| Do. Bimiti | *E. Schomburgkii*, Bth. | |
| Wamara | | |
| Warukuri or White Cedar | *Tabebuia longipes*, Baker. | |
| Waramia | | |
| Warunana | | |
| Washiba | ... | 1·05 |
| Wild Cacao or Konaheri | *Pachira aquatica*, Aubl. | |
| Wild Cacao or Konaheri-balli | *P. insignis*, Sav. | |
| Wild Maran or Laukidi-dan | *Caraipa Richardiana*, Cambess. | |
| Vogel Kop or Fogle Kop, or Kudibutshi | *Sideroxylon* sp. | 0·58 |
| Yarri-yarri (hill) or Arara | *Anaxagorea* sp. | |
| Do. (swamp) | *Anaxagorea* sp. | |
| Yawari-dan | | |
| Yaruru | *Aspidosperma excelsum*, Benth. | |
| Yura-balli | | |
| Yuwanarow | | |

## NORTH WESTERN DISTRICT.

To obtain a general idea of the composition of the forests of this District, the forest types subsequently given were combined, with the following results :—

### Forests of the Swamp Lands.

| Name of Tree. | Percentage of Trees. | Number of Trees per Acre. |
|---|---|---|
| *Predominant Trees.—* | | |
| Mora ... ... ... | 29·8 | 31·9 |
| Trysil or Koro-balli ... ... | 10·9 | 11·7 |
| *Sub-dominant Trees.—* | | |
| Corkwood ... ... ... | 8·9 | 9·5 |
| Crabwood ... ... ... | 5·1 | 5·5 |
| Manni ... ... ... | 4·4 | 4·7 |
| Coffee Mortar or Naharu ... | 3·2 | 3·4 |
| Kakaralli (various kinds) ... | 3·1 | 3·3 |
| Sarebebe ... ... ... | 3·1 | 3·2 |
| *Trees in lesser numbers.—* | | |
| Haiari-balli .. ... ... | 2·2 | 2·4 |
| Kurakai ... ... ... | 2·1 | 2·3 |
| Dalli ... ... ... | 2·0 | 2·1 |
| Arisaura ... ... ... | 1·6 | 1·7 |
| Parakusan ... ... ... | 1·6 | 1·7 |
| Warakuri or White Cedar ... | 1·6 | 1·7 |
| Maho ... ... ... | 1·5 | 1·6 |
| Buhurada ... ... ... | 1·4 | 1·5 |
| Waikey ... ... ... | 1·3 | 1·4 |
| Takariwa or Hua-hua ... ... | 1·0 | 1·1 |
| Baramalli ... ... ... | 0·9 | 1·0 |
| Kairu-balli ... ... ... | 0·8 | 0·9 |
| Aramatta ... ... ... | 0·6 | 0·6 |
| Hurawassa ... ... ... | 0·6 | 0·6 |
| Scarcer kinds of trees ... ... | 12·3 | 13·2 |
| | 100·0 | 107·0 |

### Forests of the Slightly Elevated Country.

| Name of Tree. | Percentage of Trees. | Number of Trees per Acre. |
|---|---|---|
| *Predominant Trees.—* | | |
| Kakaralli (various spp.) ... ... | 22·9 | 30·5 |
| *Sub-dominant Trees.—* | | |
| Hiari-balli ... ... ... | 9·0 | 12·0 |
| Kauta-balli ... ... ... | 7·1 | 9·4 |
| Wal'aba (various spp.) ... ... | 4·6 | 6·1 |
| Forward ... ... | 43·6 | 58·0 |

## Forests of the Slightly Elevated Country—(Contd.)

| | Percentage of Trees. | Number of Trees per Acre. |
|---|---|---|
| *Trees in lesser numbers.—* | | |
| **Forward** ... ... | 43·6 | 58·0 |
| Kurakai ... ... ... | 3·9 | 5·2 |
| Baramalli ... ... ... | 3·5 | 4·7 |
| Trysil or Koro-balli ... .. | 3·2 | 4·3 |
| Kairu-balli ... ... ... | 2·8 | 3·7 |
| Kauta ... ... ... | 2·7 | 3·6 |
| Bullet or Balata Trees ... ... | 1·9 | 2·5 |
| Mora ... ... ... | 1·8 | 2·4 |
| Yaruru ... ... ... | 1·7 | 2·2 |
| Parakusan .. ... ... | 1·4 | 1·9 |
| Waikey (various spp.) ... ... | 1·4 | 1·9 |
| Maho ... ... ... | 1·3 | 1·7 |
| Crabwood ... ... ... | 1·1 | 1·5 |
| Silver-balli (various spp.) ... | 0·9 | 1·2 |
| Black Balata... ... ... | 0·8 | 1·1 |
| Moro-balli or Sand Mora ... | 0·8 | 1·1 |
| Bariri-kutshi ... ... | 0·8 | 1·1 |
| Haimara-kutshi ... .. | 0·8 | 1·1 |
| Arara Yari-yari ... ... | 0·8 | 1·0 |
| Scarcer kinds of trees ... ... | 24·8 | 33·0 |
| | 100·0 | 133·2 |

# APPENDICES

TO

# THE NORTH WESTERN DISTRICT REPORT.

# TYPES OF FORESTS OF THE SWAMP LANDS.

## NORTH-WESTERN DISTRICT.

### Type 1.

*Class 2.*—Forests bordering the rivers and covering the low alluvial flats subject to inundation at high tides.

*Soil.*—Clay intermixed with sand, having more or less thick deposits of humus on the surface.

*Localities.*—Forest lands bordering the lower courses of the Aruka, Kaituma, Barima, Morebo, Lower Waini, Baramanni, Barama and Waiwa rivers.

The estimated quantities of the forest trees as subsequently indicated are based on sectional surveys made at twenty different places in the forests of this class situated on the above mentioned rivers.

*Composition of Forests.*—Timber trees of many species intermixed with palms in the following proportions:—

Timber trees having a minimum girth of 18 inches ... 61·7 per cent.
Palm trees ... ... ... ... ... 38·3 „ „

The forests were found to contain on an average 222 trees per acre, of which 137 were timber and 86 palm trees. The timber trees vary in quantity from 86 to 199 trees per acre. Many of the trees are crooked and some grow in a slanting position. These forests vary in character from mostly dense to a fairly open growth in places. In most parts tall slender-stemmed trees grow abundantly, and in some parts fairly high young trees are so abundant as to greatly impede walking. In the more open places young palms, mostly of manicole intermixed with swamp yarri-yari trees (*Anaxagorea* sp.) and Mucra (*Maranta obliqua*, Suebert) formed the undergrowth.

*General Characteristics*—The abundance of palms are a characteristic feature of this class of forest in the district. As compared with Type IV. of the forests situated above the tidal influence other notable features are:—

1. Decrease in mora and crabwood.
2. Increase in certain kinds, notably corkwood, trysil, manni, kurakai.
3. Absence of other kinds particularly haiari-balli.
4. Presence of mangrove, wild cacao, dalli, and takariwa. Wallaba (soft) occurs locally in places on the Barima and Upper Morebo rivers where the soil is of a more sandy nature and is not usually to be found in this class of the forests of the district.

## TIMBER TREES.

| | Estimated | |
|---|---|---|
| | Average number of trees per Acre. | Percentage of Trees. |
| PREVAILING TREES— | | |
| *Predominant kinds.—* | | |
| 1. Corkwood or Itchikiboura ... ... ... | 22·8 | 31·6 |
| 2. Trysil or Koroballi ... ... ... | 20·6 | |
| *Other commoner kinds.—* | | |
| 3. Mora ... ... ... ... ... | 11·8 | 42·0 |
| 4. Manni ... ... ... ... ... | 11·4 | |
| 5. Coffee Mortar or Naharu ... ... ... | 9·4 | |
| 6. Crabwood ... ... ... ... | 8·2 | |
| 7. Kurukai... ... ... ... ... | 4·9 | |
| 8. Wallaba (mostly soft) ... ... ... | 4·5 | |
| 9. Sarebebe or Water Wallaba ... ... | 4·3 | |
| 10. Kairuballi ... ... ... ... | 3·1 | |
| *Trees in lesser numbers.—* | | |
| 11. Dautaraba ... ... ... ... | 2·9 | 16·2 |
| 12. Dalli ... ... ... ... ... | 2·7 | |
| 13. Maho ... ... ... ... ... | 2·7 | |
| 14. Arisaura... ... ... ... ... | 2·6 | |
| 15. Buhurada ... ... ... ... | 2·2 | |
| 16. Warikuri or White Cedar ... ... ... | 2·0 | |
| 17. Mangrove ... ... ... ... | 2·0 | |
| 18. Wild Cacao or Konaheri ... ... ... | 2·0 | |
| 19. Takariwa or Hua-hua ... ... ... | 1·6 | |
| 20 Kakaralli ... ... ... ... | 1·5 | |
| SCARCER TREES— | | |
| (Of which the vernacular names of thirty-three different species are recorded) ... ... | 14·0 | 10·2 |
| | 137·2 | 100·0 |

*Summary.*—The timber trees as detailed above may be summed up briefly as follows:—

Commonest trees, (consisting of ten different kinds) ... 73·6 per cent.
Other trees in lesser numbers (comprising ten different kinds) ... ... ... ... 16·2 „ „
Scarcer trees (of more than thirty-three different kinds) ... ... ... ... ... 10·2 „ „
For further particulars of this type of forest *vide* Appendix Form No. 1.

*Girths and estimated percentages of the trees available for timber*:—The timber trees composing this type of forests are estimated (from measurements taken on 530 trees) to have an average girth of 39·7 inches, the girths ranging from 18 inches, the minimum size included, up to 103·5 inches.

The measurements made indicate that without allowing for defective or unsound trees about sixty-one per cent. of the timber trees of these forests are capable of furnishing timbers in sizes as follows:—

| | |
|---|---|
| 1. Trees ranging in girth from 30 to nearly 57 inches suitable in size for providing timbers squaring from 6 to nearly 12 inches ... ... ... | 52 per cent. |
| 2. Trees over 57 inches in girth from which timber can be obtained squaring 12 inches and over in size | 9 " " |
| Total available for timber ... ... ... | 61 " " |

*Palm Trees.*—These were found to consist of the following kinds and in the quantities indicated:—

| | Percentage with respect to all palms. |
|---|---|
| 1. Manicole, in clumps, averaging about 10 trees per clump ... ... ... | 56 per cent. |
| 2. Truli ... ... ... ... | 32 " " |
| 3. Turu ... ... ... ... | 6.3 " " |
| 4. Single Manicoles ... ... ... | 3·4 " " |
| 5. Kokerite ... ... ... ... | 1.6 " " |
| 6. Buba ... ... ... ... | 0·7 " " |
| | 100·0 |

## Type 2.

*Class 2*—Conditions.—Forest covering the alluvial flats bordering the lower courses of the river tributaries or creeks, within the tidal influence. Lands on which fresh water more or less constantly rests.

*Soil.*—Soft clay, containing sand with more or less thick deposits of humus on the surface.

*Locality.*—On the upper tidal reaches of the Waini and Barama rivers. To estimate the quantities of the trees comprising this type of forests, sectional surveys were taken at representative places selected on the Sekarahanna and Kanunaballi, tributaries of the Waini river and on the Waiwa, a tributary of the Barama river.

*Composition of the Forests.*—Timber trees consisting of more than twenty-one different kinds intermixed with palms in the following proportions:—

| | |
|---|---|
| Timber trees ... ... ... ... ... | 78·3 per cent. |
| Palms ... ... ... ... ... | 21·7 " " |

The timber trees were found to vary in number from 101·6 to 152·5, the average number being 127·3 to the acre. The palms comprised the following kinds in the quantities indicated:—

| | |
|---|---|
| Manicole, growing in clumps ... ... ... | 61·7 per cent. |
| Turu ... ... ... ... ... | 27·5 " " |
| Single Manicoles ... ... ... ... | 10·8 " " |

*General Characteristics.*—Excepting the increase of mora and absence of mangrove the general characteristics of this type are very similar to those of Forest Type 1, with which it is associated, both being of the same class.

## TIMBER TREES.

| | Estimated Average number of trees per Acre. | Percentage of trees. |
|---|---|---|
| PREVAILING TREES— | | |
| *Predominant kinds.—* | | |
| 1. Mora ... ... ... ... ... | 42·1 | 65·7 |
| 2. Trysil ... ... ... ... ... | 15·9 | |
| 3. Corkwood or Itchikiboura ... ... | 15·4 | |
| 4. Sarebebe ... ... ... ... | 10·2 | |
| *Other commonest kinds.—* | | |
| 5. Arisaura ... ... ... ... | 5·8 | 19·6 |
| 6. Dalli ... ... .. ... ... | 5·3 | |
| 7. Manni ... ... ... ... ... | 4·8 | |
| 8. Buhurada ... ... ... .. | 3·8 | |
| 9. Huruwassa ... ... ... ... | 2·9 | |
| 10. Maho ... ... ... ... ... | 2·4 | |
| SCARCER TREES— | | |
| These comprised, in addition to a number of undetermined species, the following eleven, viz:—takariwa, manariballi, waikey, coffee mortar or naharu, wadaduri, kautaballi, dukalli, baramalli, kurakai, kairu-balli and dautaraba ... ... ... ... | 18·7 | 14·7 |
| Total ... ... ... | 127·3 | 100·0 |

*Summary.*—The kinds of trees composing this type of forest may be recapitulated as follows:—

Trees consisting of ten different kinds ... ... 85·3 per cent.

Trees comprising many kinds of which the names of eleven were ascertained ... ... ... 14·7 ,, ,,

For further particulars of this type of forest *vide* Appendix Form No. 2.

*Girths and estimated percentages of the trees available for timber.*—The girths of the trees recorded in this type range from 21 inches up to 90 inches, the average girth being 36·3 inches. The proportion of trees of sufficient girth for furnishing timber is estimated from measurements made on 114 trees, to be as follows:—

1. Trees ranging in girth from 30 to nearly 57 inches, suitable in size for yielding timbers squaring from 6 to nearly 12 inches ... 54·3 per cent.
2. Trees of 57 inches or more in girth, capable of squaring timbers of 12 inches or more in size 16·7 ,, ,,

Percentage of trees available for timber ... ... 71·0 ,, ,,

## Type 3.

*Class 3.*—Forests covering the swampy alluvium, depressed below the level of high tides, extending behind the river lands.

*Soil.*—Clay and sand intermixed with much humus on the surface.

*Locality Inspected.*—Lower Kaituma river, near the mouth, over 200 yards distant from the banks. The estimated quantities of the forest trees as given in this forest type are from determina tions obtained from sectional surveys made in the abovementioned locality, embracing an area equal to $\frac{1}{700}$ part of a square mile.

| | | |
|---|---|---|
| *Composition of Forest.*—Timber trees consisting of over eighteen different kinds ... ... | 27 | per cent. |
| Palm trees, of four different kinds ... ... | 83 | ,, ,, |
| Total ... ... ... | 100 | |

The forest is of a fairly open character, containing but little undergrowth. The palms and timber trees are intermixed, and in some parts the forests are found to be composed almost entirely of certain kinds of palms, those of manicole and truli predominating.

*General Characteristics.*—The great abundance of palms and corresponding scarcity of timber trees are the chief characteristics of this type. As compared with the types of forests covering the alluvial lands bordering the rivers and larger creeks, the timber trees comprise fewer kinds, and these are more evenly distributed in number. A notable feature is the absence of mora, sarebebe and wild cacao, and decreases in corkwood, all of which trees favour river margins.

N.B.—Lands covered with forests of this type and those of Type 1 are mostly cleared for agricultural purposes in the district.

## TIMBER TREES.

| PREVAILING TREES.— | Estimated Average number of trees per Acre. | Percentage of trees. |
|---|---|---|
| *Commonest kinds.*— | | |
| 1. Trysil or Koroballi ... ... ... | 7·5 | 58 |
| 2. Warakuri or White Cedar ... ... ... | 6·2 | |
| 3. Manni ... ... .. ... ... | 5·0 | |
| 4. Coffee Mortar or Naharu ... ... ... | 3·1 | |
| 5. Waikey (Karoto variety) ... ... ... | 2·5 | |
| 6. Dalli ... ... ... ... ... | 2·5 | |
| *Other trees in lesser numbers.*— | | |
| 7. Takariwa or Hua-hua ... ... ... | 1·9 | 22 |
| 8. Crabwood ... ... ... ... | 1·9 | |
| 9. Duka ... ... ... ... ... | 1·9 | |
| 10. Corkwood or Itchikiboura ... ... ... | 1·9 | |
| 11. Wanasoro or Pump-wood ... ... ... | 1·3 | |
| 12. Maho, (broad leaf variety) ... ... ... | 1·3 | |
| SCARCER TREES.— | | |
| Of these the following six species were recorded by name, viz :—Itchikiboura-balli, kairu-balli, aliku or benda, kumara-mara, barabara and shirua ... ... ... ... ... | 9·2 | 20 |
| Total number ... ... ... | 46·2 | 100 |

*Summary.*—The timber trees constituting this forest type may be briefly summarised as follows :—

| | |
|---|---|
| Commonest trees consisting of six different kinds ... | 58 per cent. |
| Other trees in lesser numbers also comprising six different kinds ... ... ... ... | 22 „ „ |
| Scarcer kinds of undetermined number, of which the names of six are recorded ... ... ... | 20 „ „ |

*Girths of the trees.*—These were unfortunately not recorded in this and certain other forest types investigated in this district at the commencement of the inspections. Trees of 18 inches or over in girth only were registered, and the quantities available for timber should be about that of the general average given for the forests of the swamp lands.

*Palms.*—These consist of the following kinds in the proportions stated :—

| | |
|---|---|
| 1 Truli ... ... ... ... ... | 65 per cent. |
| 2. Clumps of manicole, having from six to fourteen trees per clump ... ... ... ... | 32 „ „ |
| 3. Turu ... ... ... ... ... | 2 „ „ |
| 4. Buba ... ... ... ... ... | 1 „ „ |
| Total ... ... ... | 100 |

## Type 4. (Mora Forest).

*Class 4.*—Forests bordering the rivers and covering the flat lands slightly raised above the tidal level and more or less inundated during the wet season.

*Soil.*—Sandy clay with varying quantities of humus on the surface.

*Localities Inspected.*—Forest lands situated on the Upper Waini and Barama rivers.

(The estimated quantities of the forest trees composing this type are based on the results of sectional surveys made at sixteen different places in the abovementioned localities).

*Composition of the Forests.*—The timber trees consist of over 38 different species intermixed with each other, and also with a few species of palm trees.

| | |
|---|---|
| Estimated proportions of timber trees with a minimum girth of from 18 ins. upwards ... ... | ...85 per cent. |
| Estimated proportions of palm trees ... ... | ...15 „ „ |

(reckoning each of the clumps of manicole palms as a single tree).

The timber trees vary in quantity from 84·2 trees to 191·5 trees per acre, the estimated average being 113·6 trees to the acre. Some trees, such as trysil are of crooked growth, and a few grow in slanting positions.

In addition to the timber trees palms contributed 20·7 trees to the acre, making the total number of forest trees 134·3 to the acre.

The forest growth of this type varies from a fairly dense to a fairly open nature. There is no marked line of demarcation between them and those of

Class 2. Seedlings of mora, the predominant tree, grow so densely in places that to obtain access they must be cleared away, so as to make a narrow passable track. In other parts of a more open nature, intermixed with the young Mora, the undergrowth consists principally of yarri-yarri trees, prickly bactris palms, seldom exceeding 15 feet in height, numerous dallibanna palms of low growth, with bushes, ferns, and mucra in the more swampy places.

*General Characteristics.*—Mora, from its abundance as well as the immense size of the trees (attaining in some cases a girth of 10 feet, and a height of nearly 200 feet), is the characteristic tree of this type of forest, locally known as mora forest. As compared with the forests situated within the tidal influence (Type 1), the other notable features are as follows :—

1. Marked decrease in the quantity of palms.
2. Increase in the quantities of mora, crabwood and kakaralli trees.
3. Decrease in certain kinds of trees, notably corkwood, trysil and manni.
4. Absence of other swamp trees, principally mangrove, wild cocoa, dalli and takariwa.

## TIMBER TREES.

| | Estimated | |
|---|---|---|
| | Average number of trees per Acre. | Percentage of Trees. |
| PREVAILING TREES— | | |
| *Predominant kinds*— | | |
| 1. Mora ... ... .. ... ... | 52·1 | 45·8 |
| 2. Crabwood ... ... ... ... | 15·6 | 13·7 |
| *Other commonest kinds*— | | |
| 3. Trysil or Koroballi ... ... ... | 9.4 | 24·2 |
| 4. Corkwood or Itchikiboura ... ... ... | 4·8 | |
| 5. Kakaralli, various varieties... ... ... | 4·5 | |
| 6. Haiari-balli, pale species ... ... ... | 3·3 | |
| 7. Coffee Mortar or Naharu ... ... ... | 3·1 | |
| 8. Manni ... ... ... ... ... | 2·4 | |
| *Trees in lesser numbers*— | | |
| 9. Sarebebe or Water Wallaba ... ... | 1·6 | 8·3 |
| 10. Buhurada ... ... ... ... | 1·4 | |
| 11. Waikey (various varieties)... ... ... | 1·2 | |
| 12. Parakusan ... ... ... ... | 1·2 | |
| 13. Aramatta ... ... ... ... | 1·1 | |
| 14. Kauta-balli ... ... ... ... | 1·1 | |
| 15. Kauta ... ... ... ... ... | 1·0 | |
| 16. Kurakai... ... ... ... ... | 0·9 | |
| SCARCER TREES— | | |
| Of these twenty-two kinds were distinguished by native names. All were widely scattered in the forests. Together they contributed... ... | 8·9 | 8·0 |
| Total number of Timber Trees ... | 113·6 | 100·0 |

*General Summary.*—The numerical proportions of the timber trees composing these forests may be summed up as follows :—

| | |
|---|---|
| Commonest trees, consisting of eight different kinds... | 83·7 per cent. |
| Other trees in lesser numbers comprising eight different kinds ... ... ... ... ... | 8·3 „ „ |
| Scarcer trees of more than twenty-two different kinds | 8·0 „ „ |

For further details as to names, estimated quantities and girths of the kinds of timber trees composing this type of forest, *vide* Appendix Form No. 3.

*Girths and estimated percentages of the trees available for timber.*—The girths recorded of 743 of the timber trees in this forest type, range from a minimum of 18 inches upwards to 110 inches, the average girth being 36·7 inches.

Estimates based on these measurements indicate that of the timber trees in these forests the quantities available for timber are as follows :—

| | |
|---|---|
| Trees the girths of which range from 30 to nearly 57 inches, and from which timbers can be obtained squaring from 6 to nearly 12 inches ... | ...43 per cent. |
| Trees of 57 inches and over in girth or of sufficient size for furnishing timber squaring 12 inches or over | ...20 „ „ |
| Total available for timber ... | ...63 „ „ |

The largest trees are mostly of mora, many of which are well known to become hollow as they increase in size, so that probably not more than half of the estimated percentage of the larger trees could be relied on for this purpose.

*Palms.*—Manicole in clumps (from each of which spring about ten slender palms) were by far the most abundant. Reckoning each clump of manicole palms as a single tree, this kind constituted 80 per cent. of all the palms. The other kinds of palms consist of single manicoles, turu, and a few buba.

## Type 5.

*Class 4.*—Conditions.—Forests bordering the lower courses of the creeks or tributaries situated beyond the tidal influence.

*Soil.*—Yellow clay intermixed with more or less sand, and devoid of partly ferruginous rocks, having but little humus unevenly distributed on the surface.

*Locality.*—Basins of the Waini and Barama rivers. The estimates of the quantities and percentages of the different species in this type are determined from the results of sectional surveys made at eight different places situated on tributaries flowing to the abovementioned rivers.

*Composition of the Forests.*—The trees comprise over twenty-seven different kinds, and range in number from 81·8 to 126·2 trees to the acre, the average estimated number per acre being 111·1 trees. Palms are practically absent. The undergrowth is of a somewhat dense character, consisting mostly of young mora trees intermixed with those of the other species composing the type. Lianes or sipos and vines flourish abundantly.

*General Characteristics.*—Great abundance of mora and almost entire absence of palms are the chief characteristics of this type. The trees consist mostly of the same kinds as those in Forest Type IV, as compared with which the increase in kakaralli and great increase in crabwood are the most notable differences in the timber trees.

## TIMBER TREES.

| | Estimated | |
|---|---|---|
| | Average number of trees per Acre. | Percentage of trees. |
| PREVAILING TREES.— | | |
| *Predominant kinds.*— | | |
| 1. Mora ... ... ... ... ... | 53·6 | 48·2 |
| *Other commonest kinds.*— | | |
| 2. Kakaralli, various species ... ... ... | 10·6 | 36·1 |
| 3. Haiari-balli ... ... ... ... | 8·5 | |
| 4. Parakusan ... ... ... ... | 7·4 | |
| 5. Trysil ... ... ... ... ... | 5·3 | |
| 6. Kurakai ... ... ... ... | 4·8 | |
| 7. Baramalli ... ... ... ... | 3·5 | |
| *Trees in lesser numbers.*— | | |
| 8. Corkwood or Itchikiboura ... ... ... | 2·6 | 8·2 |
| 9. Aramatta ... ... ... ... | 1·9 | |
| 10. Crabwood ... ... ... ... | 1·6 | |
| 11. Yarri-yarri, black ... ... ... | 1·1 | |
| 12. Waikey ... ... ... ... ... | 1·0 | |
| 13. Shera-bulli-balli or Naidu ... ... ... | 0·9 | |
| SCARCER TREES.— | | |
| Of these the following thirteen were recorded, viz:—Kauta, phooti or fotui, maho, itchiki-boura-balli, bara-danni, assapoka, Aroa-dan, bariri-kutchi, wadara, haimara-kutchi, wada-duri, suradanni, kaiarima, and silverballi (yellow) ... ... ... ... | 8·3 | 7·5 |
| Total ... ... ... | 111·1 | 100·0 |

*Summary.*—A recapitulation of the estimated quantities of the kinds of trees as previously detailed shows the composition of this type of forests to be as follows:—

| | |
|---|---|
| Commoner trees comprising seven different kinds (of which over 48 per cent. are of mora) ... ... | 84·3 per cent. |
| Other trees in lesser numbers, consisting of six different kinds ... ... ... ... ... | 8·2 " " |
| Scarcer trees including more than thirteen kinds ... | 7·5 " " |

For further details *vide* Appendix Form No. 4.

*Girths and estimated percentages of the trees available for timber*:—The trees representing this forest type were found to have a range in girth of from 18·5 to 153·5 inches, the average girth being 40·8 inches, not including certain very large fluted or buttressed trees, one of which, a parakusan, measured 18 feet in circumference.

The recorded girths of 289 trees indicate the proportion of the trees of sufficient size for furnishing timber to be as follows:—

| | |
|---|---|
| 1. Trees ranging in girth from under 57 to a minimum of 30 inches, or of sufficient size for squaring timbers correspondingly ranging from nearly 12 to 6 inches ... ... ... ... | 42·5 per cent. |
| 2. Trees having girths of 57 inches or more, or capable of squaring 12 inches or more in size ... ... | 24·9 " " |
| Percentage of trees available for timber ... | 67·4 " " |

*Crabwood containing areas of the forests of the swamp lands.*—Crabwood trees are to be found scattered throughout most parts of the forest lands of this class. In the forests of Type 4 these trees are to a great extent fairly evenly interspersed amongst the other trees; but in those of Class 2 on the slightly lower lands situated within the tidal reaches of the principal rivers of the district, they appear to be unequally distributed, certain areas containing many more trees of this wood than others, and some none at all.

## Type 6.

*Composition of the crabwood areas of the forests of Class 2.*—The quantities of the forest trees, as estimated from the results of sectional surveys taken at fourteen different places situated within these areas, were found to be as follows:—

| | |
|---|---|
| Timber trees ... ... ... ... | 58·6 per cent. |
| Palm trees ... ... ... ... | 41·4 " " |
| | 100·0 |

*General Characteristics.*—Similar to those in the forests of Type 1. Wallaba was absent.

## TIMBER TREES.

| | Estimated Average Number of Trees per acre. | Percentage of Trees. |
|---|---|---|
| **Prevailing Trees.—** | | |
| *Predominant Kinds.—* | | |
| 1. Corkwood or itchikiboura ... ... | 23·9 | 35·3 |
| 2. Trysil or koroballi ... ... ... | 20·8 | |
| *Other commonest kinds.—* | | |
| 3. Mora ... ... ... ... | 11·5 | 45·0 |
| 4. Crabwood ... ... ... ... | 11·3 | |
| 5. Manni ... ... ... ... | 9·9 | |
| 6. Coffee Mortar ... ... ... | 9·2 | |
| 7. Kurakai ... ... ... ... | 5·1 | |
| 8. Kairuballi ... ... ... ... | 3·6 | |
| 9. Sarebebe ... ... ... ... | 3·5 | |
| 10. Mangrove ... ... ... ... | 2·9 | |
| *Other trees in lesser numbers.—* | | |
| 11. Dautaraba or fire Mamma ... | 2·7 | 13·4 |
| 12. Maho, broad leaf variety ... | 2·7 | |
| 13. Dalli ... ... ... ... | 2·6 | |
| 14. Buhurada ... ... ... ... | 2·4 | |
| 15. Wild Cacao or konaheri ... ... | 2·2 | |
| 16. Takariwa or hua-hua ... ... ... | 2·1 | |
| 17. Arisaura ... ... ... .. | 1·2 | |
| 18. Kakaralli long pod variety .. ... | 1·1 | |
| **Scarcer Trees—** | | |
| 23 of which were distinguished by native names, and all of which were widely scattered amongst the abovementioned trees ... ... ... | 7·9 | 6·3 |
| Total timber trees ... ... | 126·6 | 100·0 |

For further details, *vide* Appendix Form No. 5.

*The average girths and estimated quantities of trees* available for timber are practicably of the same values as those assigned to the forests of Type 1, in which these areas are included.

*Palms.*—Those consist of the same six kinds as those in Type 1, in the following proportions :—

| | Proportion with respect to all Palms. |
|---|---|
| 1. Manicole in clumps ... ... ... | 59·1 per cent. |
| 2. Truli ... ... ... ... ... | 27·3 „ „ |
| 3. Turu ... ... ... ... ... | 6·3 „ „ |
| 4. Single manicoles ... ... ... ... | 4·8 „ „ |
| 5. Kokerite ... ... ... ... ... | 2·1 „ „ |
| 6. Buba ... ... ... ... ... | 0·4 „ „ |
| Total ... ... ... | 100·0 |

*Estimated quantities of crabwood available for timber.*—The resources of the forests covering the swampy lands of this district with respect to crabwood timbers appear to be as follows:—

| | Estimated Average Number of Trees per acre. | Estimated Average Girth of Trees. |
|---|---|---|
| 1. Crabwood containing areas of the forests of Type 6 ... ... ... | 11·3 | 37·9 |
| 2. In the forests of Type 4 ... . . | 15·6 | 42·3 |
| Estimated average number of crabwood trees in swamp forests of the river lands | 13·4 | 40·1 |

Of all the crabwood trees measured in these types, about fifty-three per cent. were found to vary from 40 to 80 inches in girth. Without allowing for defective trees, the above measurements indicate that of the average number of crabwood trees to the acre, as estimated above, about one-half only may be considered as available for furnishing timber squaring not less than 8 inches in size, the minimum size of this timber in general use locally for lumber.

With but few exceptions, the felling of crabwood for timber has, in order to avoid transportation, been so far entirely restricted to the river margins in this district, those trees only being cut that will fall either into or near to the water.

## TYPES OF FORESTS ON THE SLIGHTLY ELEVATED OR HILLY LANDS.

### NORTH WESTERN DISTRICT.

### Type 7.

*Class 1.*—Forests on higher valley lands bordering the upper courses of the rivers and their tributaries sometimes inundated by torrential rains or floods.

*Soil.*—Residual light coloured sandy clay, mostly derived from gneiss, and intermixed with varying quantities of humus.

*Locality.*—Forest District No. 1—Amacura-Barima.—At the end of the tidal reach on the Amacura river, above the tributary of Sebai, where a sectional survey was taken at a representative place to determine the quantities of the various kinds of trees composing this forest type in the district.

*Composition of the Forest.*—The trees consist of a great many different kinds, of which twenty-six were distinguished by vernacular names. The forests of this type are estimated to contain on an average 230 trees to the acre. On account of the light and space afforded by the situation, the density of the forest growth is conspicuously evident along the margins of the rivers, of which this type is an example. The palms are represented only by a few scattered buba.

The undergrowth consists principally of two kinds of small yarri-yarri trees, seldom exceeding 4 inches in diameter.

### TIMBER TREES.

| PREVAILING TREES— | Average number of trees per acre. | Estimated Percentage of trees. |
|---|---|---|
| *Predominant kinds...* | | |
| 1. Kakaralli ... ... ... ... | 19·4 | 40·9 |
| 2. Kurakai... ... ... ... ... | 18·3 | |
| 3. Haiari-balli ... ... ... ... | 17·7 | |
| *Other commonest kinds—* | | |
| 4. Sarebebe ... ... ... ... | 10·0 | 38·6 |
| 5. Crabwood ... ... ... ... | 10·0 | |
| 6. Baramalli ... ... ... ... | 8·2 | |
| 7. Kauta-balli ... ... ... ... | 7·1 | |
| 8. Corkwood or itchikiboura ... ... ... | 7·1 | |
| 9. Waikey... ... ... ... ... | 5·9 | |
| 10. Maho (broad leaf) ... ... ... | 4·1 | |
| *Trees in lesser numbers—* | | |
| 11. Coffee Mortar or naharu ... ... ... | 3·5 | 7·8 |
| 12. Trysil or koro-balli ... ... ... | 2.9 | |
| 13. Aramatta ... ... ... ... | 2·3 | |
| 14. Suradanni ... ... ... ... | 1·8 | |
| SCARCER TREES— | | |
| These include the following:—Kairu-balli, letter-wood, mabua or sapium rubber, wadaduri or monkey pot, mari-mari, yuwanarow, dalli, mora-balli, barabara, hubu or hog plum, silver-balli (yellow), aliku or benda, and in addition a great many undetermined kinds ... | 17·2 | 12·7 |
| Total... ... ... | 135·5 | 100·0 |

*Summary.*—The various kinds of trees in this forest type as estimated above may be briefly summed up as follows:—

Commonest trees consisting of ten different kinds... 79·5 per cent.
Other trees in lesser numbers made up of four different kinds ... ... ... ... ... 7·8 „ „
Scarcer trees, comprising the 12 specified by native names, and a great many others undetermined ... 12·7 „ „

*Girths of the trees.*—The girths of the trees recorded in this type were not measured, but the minimum girth of those considered was 24 inches. The percentage of the trees of sufficient size for yielding timbers may be considered as being of much the same value as those in similar forests of the same class.

## Type 8.

*Class 2.*—Forests on slightly raised flat lands of sedentary soils, extending between the low hilly ridges and partly swampy in the wet season.

*Soil.*—Clay and sand intermixed with humus. Soil mostly derived from granitic gneiss.

*Locality.*—Forest District No. 1—Amacura-Barima.—On the flat and partly swampy lands intervening between the low ridges in the vicinity of the Gravel creek, left bank, Kaituma river.

The estimates of the forest trees in this type are based on the result of survey sections covering an area equal to $\frac{1}{900}$ of a square mile at a place chosen as being representative of this class of forests in the district.

*Composition of the forest.*—Sixteen different kinds of timber trees are represented in the composition of these forests, as well as a number of undetermined ones. Timber trees and palms intermixed are estimated to be as follows:—

| | per acre. | | per cent. |
|---|---|---|---|
| Timber trees ... ... ... ... | 99·8 | or | 81·6 |
| Palm trees ... ... ... ... | 22·5 | or | 18·4 |
| Total ... ... ... | 122·3 | | 100·0 |

The palms consist of the following three kinds in the proportion stated :—

| | |
|---|---|
| 1. Truli ... ... ... ... ... | 62·6 per cent. |
| 2. Turu ... ... ... ... ... | 25·0 „ „ |
| 3. Buba ... ... ... ... ... | 12·4 „ „ |

The undergrowth is of an open nature, consisting mostly of small yarri yarri trees of two species, intermixed with young palms.

## FOREST TREES.

| PREVAILING TREES.— | Estimated Average number of trees per Acre. | Estimated Percentage of trees. |
|---|---|---|
| *Predominant kinds.*— | | |
| 1. Kakaralli, (various) ... ... ... | 28·1 | 28·1 |
| *Other commonest kinds.*— | | |
| 2. Haiari-balli ... ... ... ... | 9·9 | 38·1 |
| 3. Kauta ... ... ... ... ... | 8·5 | |
| 4. Baramalli ... ... ... ... | 7·0 | |
| 5. Arara yarri-yarri ... ... ... | 4·2 | |
| 6. Waikey ... ... ... ... | 4·2 | |
| 7. Kabukalli ... ... ... ... | 4·2 | |
| *Trees in lesser numbers.*— | | |
| 8. Suradanni ... ... ... ... | 2·8 | 33·8 |
| 9. Wadaduri ... ... ... ... | 2·8 | |
| 10. Kurakai ... ... ... ... | 2·8 | |
| 11. Moro-balli or sand mora ... ... ... | 2·8 | |
| 12. Hurawassa ... ... ... ... | 2·8 | |
| 13. Maho (broad leaf var.) ... ... ... | 2·8 | |
| 14. Balata-balli ... ... ... ... | 1·4 | |
| 15. Yaruru ... ... ... ... ... | 1·4 | |
| 16. Mari-mari ... ... ... ... | 1·4 | |
| Undetermined Trees ... ... ... | 12·7 | |
| Total ... ... ... ... | 99·8 | 100·0 |

| | |
|---|---|
| *Summary.*—Prevailing trees consisting of seven different kinds ... ... ... ... ... | 66·2 per cent. |
| Trees in lesser numbers, nine of which are distinguished by native names ... ... ... ... | 33·8 „ „ |

*Girths of the trees.*—Trees under 24 inches in girth are not included in this type, the girths of the trees in which were not recorded. They were somewhat smaller than those given in Type 9.

## Type 9.

*Class 3.*—Forests covering the low hills or ridges traversing the alluvium and slightly raised plains.

*Soil.*—Sandy clay mostly derived from the decomposition of gneiss.

*Locality.*—Forest District No. 1—Amacura-Barima.—On one of the low ridges rising about twenty feet in height, and situated on the left bank of the Kaituma River, near Gravel Bank.

The estimates of the quantities of the forest trees and the proportion of the respective kinds composing this type of forests are based on a sectional survey extending over a low forest clad ridge, chosen as being representative of this class of forest in the locality mentioned.

*Composition of the forests*—The trees were found to comprise over twenty-five kinds, and are estimated to average 108 to the acre. In addition to these there were a great number of tall slender trees which were not taken into account, and a few buba palms.

The predominating trees are kakaralli, kauta and haiara-balli.

The forests of this type are of a comparatively open nature, the undergrowth consisting principally of the species of yarri-yarri known as white, black, and arara, growing to a height of from 12 to 15 feet. They are useful for rods and provide a fibrous bark.

### TIMBER TREES.

| PREVAILING TREES— | Estimated Average number of trees per acre. | Percentage of trees. |
|---|---|---|
| *Predominant kinds—* | | |
| 1. Kakaralli (various species)... ... ... | 31·5 | 53·1 |
| 2. Kauta ... ... ... ... ... | 14·6 | |
| 3. Haiari-balli ... ... ... ... | 11·3 | |
| *Other commonest kinds—* | | |
| 4. Kurakai... ... ... ... ... | 5·6 | 25·2 |
| 5. Black balata ... ... ... ... | 3·4 | |
| 6. Olu ... ... ... ... ... | 3·4 | |
| 7. Yaruru ... ... ... ... ... | 3·4 | |
| 8. Waikey ... ... ... ... ... | 3·4 | |
| 9. Bariri-kutchi ... ... ... ... | 3·4 | |
| 10. Dalli ... ... ... .. ... | 2·3 | |
| 11. Dukalli ... ... ... ... ... | 2·3 | |
| Forward ... ... ... | 84·6 | 78·3 |

## TIMBER TREES.—(Contd.)

| | Estimated | |
|---|---|---|
| | Average number of trees per Acre. | Percentage of trees. |
| Forward ... ... | 84·6 | 78·3 |
| TREES IN LESSER NUMBERS— | | |
| Each of which contributed about one tree per acre, are: kairuballi, yawaridan, arara (a yarri-yarri), baramalli, simarupa, hill barabara, yuwanarow, kokonshi, shirada, assakola, koyetchi, buhurada, karahura, mamuriballi, and in addition other trees not distinguished by vernacular names ... | 23·4 | 21·7 |
| Total ... ... | 108·0 | 100·0 |

*Summary*—

Prevailing trees made up of eleven different kinds... 78·3 per cent.
Trees in lesser numbers, consisting of over fourteen different kinds ... ... ... ... 21·7 „ „

*Girths of the trees*—The girths of the trees recorded as representing this type were not all measured, but they ranged on an average from a minimum of 24 up to 96 inches or more in girth, the largest, a black balata, measuring 219 inches in circumference.

### Type 10. (Bullet Tree Forests).

*Class 4.*—Forests clothing the plains and hills of the slightly elevated country.

*Soil.*—Light coloured sand with clay, derived almost entirely from acidic rocks, (granite or gneiss) and intermixed with some humus.

*Locality*—Forest District No. 1.—Amacura-Barima. Hilly lands about 200 feet above sea level, on one of the head tributaries of the Kaituma river.

The estimates of the forest trees subsequently given are derived from the results of a sectional survey made at a place chosen as being typical of the forests in this district, which extends beyond the limit of the easily accessible portion of the colony.

*Composition of the forests.*—The trees consist of many kinds of which the vernacular names of sixteen are recorded. The forest trees were found to average 77 to the acre. From the numerous patches of bullet trees which occur irregularly distributed in groups throughout most parts of the forests in this portion of the district, these forests are locally termed bullet tree forests, although the predominant trees are kauta-balli and kakaralli, which, together, comprise nearly one-third of all the forest trees.

A fairly dense growth of tall slender stemmed trees of various kinds occur in this type. Intermixed with them are two kinds of yarri-yarri (white and arara), which average about 21 trees to the acre. A few turu palms occur widely scattered.

## TIMBER TREES.

| | Estimated Average number of trees per Acre. | Estimated Percentage of trees. |
|---|---|---|
| **Prevailing Trees.—** | | |
| *Predominant kinds.—* | | |
| 1. Kauta-balli ... ... ... ... | 19·7 | 32·5 |
| 2. Kakaralli ... ... ... ... | 18·1 | |
| *Other commonest kinds.—* | | |
| 3. Bullet trees* ... ... ... ... | 10·6 | 44·1 |
| 4. Balata-balli (barta-balli) ... ... ... | 6·1 | |
| 5. Yaruru ... ... ... ... | 6·1 | |
| 6. Male bullet trees (?) ... .. ... | 6·1 | |
| 7. Haimara-kutshi ... ... ... ... | 6·0 | |
| 8. Kairu-balli ... ... ... ... | 4·5 | |
| 9. Moro-balli or sand mora ... ... ... | 4·5 | |
| 10. Wild Maran ... ... ... ... | 4·5 | |
| 11. Coffee Mortar or naharu ... ... ... | 3·0 | |
| **Scarcer Trees.—** | | |
| These include "Rose of the Mountain," maho, barabara, and baramalli (1·5 trees per acre each) together with many other kinds not distinguished by vernacular names ... ... | 27·2 | 23·4 |
| Total ... ... ... ... | 116·4 | 100·0 |

*Summary.—*

Prevailing trees consisting of eleven different kinds ... 76·6 per cent.

Scarcer trees of many kinds ... ... ... 23·4 ,, ,,

*Girths.*—The girths of the trees were not recorded, the minimum size counted being 24 inches in circumference.

## Type 11.

*Class 4.*—Forests clothing the plains and hills of the slightly elevated country, mostly derived from partly ferruginous rocks.

*Soil.*—Dark coloured or yellowish sandy clay, mostly derived from partly ferruginous rocks.

*Locality*—Forest District No. 2. Barima-Barama.—The estimated quantities of the forest trees are based on the results of sectional surveys, made at eight different places in District No. 2.

*Composition of the forests.*—Timber trees consisting o over forty-three different kinds.

The number of trees to the acre varied from 93 to 165·5, the estimated average number being 140 to the acre.

Palms of large size are absent, only a few of turu occurring in places.

---

[*] The bullet trees are not evenly distributed in the forest, but occur in isolated groups situated at varying distances apart, and usually on the hill tops.

## TIMBER TREES.

| | Estimated | |
|---|---|---|
| **Prevailing Trees.—** | Average number of trees per Acre. | Percentage of trees. |
| *Predominant kinds.—* | | |
| 1. Kakaralli ... ... ... ... | 35·0 | 35·5 |
| 2. Haiari-balli ... ... ... ... | 14·7 | |
| *Other commonest kinds.—* | | |
| 3. Kauta-balli ... .. ... ... | 11·8 | 29·3 |
| 4. Parakusan ... ... ... ... | 8·4 | |
| 5. Kairu-balli ... ... ... ... | 7·6 | |
| 6. Kurakai ... ... ... ... | 5·3 | |
| 7. Mora ... ... ... ... ... | 4·0 | |
| 8. Baramalli ... ... ... ... | 4·0 | |
| *Trees in lesser numbers.—* | | |
| 9. Baramanna ... ... ... ... | 2·7 | 25·2 |
| 10. Yaruru .. ... ... ... ... | 2·7 | |
| 11. Greenheart* ... ... ... ... | 2·5 | |
| 12. Arara ... ... ... ... ... | 2·5 | |
| 13. Ariwiwa ... ... ... ... | 2.5 | |
| 14. Wallaba (soft) ... ... ... ... | 2·4 | |
| 15. Halichi-balli ... ... ... ... | 2·4 | |
| 16. Bariri-kutshi ... ... ... ... | 2·3 | |
| 17. Maho ... ... ... ... ... | 2·2 | |
| 18. Assapoka ... ... ... ... | 2·0 | |
| 19. Kauta ... ... ... ... ... | 1·8 | |
| 20. Kabukalli ... ... ... ... | 1·5 | |
| 21. Mora-balli ... ... ... ... | 1·4 | |
| 22. Black balata ... ... ... ... | 1·3 | |
| 23. Bara-bara ... ... ... ... | 1·1 | |
| 24. Wanasoro ... ... ... ... | 1·1 | |
| 25. Wadaduri ... ... ... ... | 1·1 | |
| 26. Suradanni ... ... ... ... | 0·9 | |
| 27. Aroa-dan ... ... ... ... | 0·9 | |
| **Scarcer Trees.—** | | |
| Of these the names of sixteen kinds of trees are recorded, of which the better known are silver-balli, fotui, trysil and purple-heart ... | 14·0 | 10·0 |
| Total ... ... ... ... | 140·1 | 100·0 |

*Summary.*—The composition of the timber trees contained in this forest type may be briefly summed up as follows:—

Commonest trees, consisting of eight different kinds, 64·8 per cent.

Trees in lesser numbers, made up of nineteen other different kinds ... ... ... ... 25·2 „ „

---

* Occurs locally at a few places only.

*Summary*—(Contd.)

| | |
|---|---|
| Widely scattered trees consisting of more than sixteen other different kinds ... ... ... | 10·0 per cent. |

Further details will be found recorded in Appendix Form No. 6.

*Girths and estimated percentages of trees available for timber.*—The average girth as ascertained from measurements made on 297 trees in this forest type was 37·1 inches, the girths of the trees ranging from 18 inches upwards to 130 inches. The measurements indicate the proportion of trees of sufficient size for supplying timber to be as follows:—

| | |
|---|---|
| Trees with girths ranging from 30 to nearly 57 inches, suitable for felling for logs of a size squaring from 6 to nearly 12 inches ... ... ... ... | 43·5 per cent. |
| Trees of 57 inches or more in girth, from which timbers can be obtained squaring 12 inches or more in size | 15·5 „ „ |
| Percentage of trees available for timber | 59·0 „ „ |

## Type 12.

*Class 1.*—Forests on higher valley lands bordering the upper courses of the rivers and their tributaries, sometimes inundated by torrential rains or floods.

*Soil.*—Sand intermixed with clay, varying in colour from white to yellow, mostly derived from acidic rocks, and containing humus in varying quantities, mostly near the surface.

*Locality.*—Barama-Waini—Forest District No. 3 and Waini to Manawarin, Moruca.

The quantities of the trees as estimated in this forest type are based on the results of sectional surveys taken at ten different places in the above locality, and may be considered as being representative of this class of forest obtaining in the district generally.

*Composition of the forests.*—The trees consist of a great many kinds, of which, forty-three are recorded by native names.

They were found to vary in number from 107 to 171·2 per acre, the average number being estimated at 137 trees to the acre.

A few buba palms and small manicole palms occur widely scattered in parts, and numerous low-growing prickly bactris palms in most places.

The undergrowth is mostly of a dense nature, and consists of numerous small trees such as yarri-yarri and an abundant growth of young seedlings of the various species of the commonest trees.

The trees are interlaced by a tangle of sipos or lianes. Ferns are abundant.

## TIMBER TREES.

| | Estimated | |
|---|---|---|
| | Average number of trees per acre. | Percentage of trees. |
| PREVAILING TREES— | | |
| *Predominant kinds—* | | |
| 1. Kakaralli ... ... ... ... | 23·4 | 45·6 |
| 2. Haiari-balli ... ... ... ... | 23·4 | |
| 3. Trysil or koro-balli ... ... ... | 15·7 | |
| *Other commonest kinds—* | | |
| 4. Kurakai... ... ... ... ... | 8·0 | 28·5 |
| 5. Kauta ... ... ... ... ... | 7·3 | |
| 6. Baramalli ... ... ... ... | 6·1 | |
| 7. Kauta-balli ... ... ... ... | 4·8 | |
| 8. Arara and black yarri-yarri ... ... | 3·5 | |
| 9. Aramatta ... ... ... ... | 3·3 | |
| 10. Bariri-kutshi ... ... ... ... | 3·0 | |
| 11. Waikey ... ... ... ... ... | 3·0 | |
| *Trees in lesser numbers—* | | |
| 12. Corkwood or itchikiboura ... ... ... | 2·9 | 13·6 |
| 13. Parakusan ... ... ... ... | 2·8 | |
| 14. Aroa-dan or tiger wood ... ... ... | 2·3 | |
| 15. Crabwood ... ... ... ... | 1·6 | |
| 16. Suradanni ... ... ... ... | 1·6 | |
| 17. Maporokong ... ... ... ... | 1·5 | |
| 18. Silver-balli (various) ... ... ... | 1.3 | |
| 19. Haimara-kutshi ... ... ... ... | 1·2 | |
| 20. Maho ... ... ... ... ... | 1·2 | |
| 21. Moro-balli or sand mora ... ... ... | 1.2 | |
| 22. Arakadak ... ... ... ... | 1·0 | |
| SCARCER TREES— | | |
| Of these twenty-one different kinds were recognised and recorded. Amongst them the better known are mora, wadaduri, dukalli, duka, fotui, olu, wallaba (soft), and simarupa ... | 16·9 | 12·3 |
| Total ... ... | 137·0 | 100·0 |

*Summary.*—The numerical proportions of the trees comprising this type of forests can be shortly summed up as follows:—

Commonest trees, consisting of eleven different kinds...74·1 per cent.

Other trees in lesser numbers, composed of eleven different kinds ... ... ... ...13·6 „ „

Scarcer trees, made up of more than twenty-one different kinds ... ... ... ...12·3 „ „

Further details will be found on reference to Appendix Form No. 7.

*Girths and estimated percentages of trees available for timber.*—The range in girth of the trees recorded in this type vary from 18·7 to 156 inches, the average girth being 40·9 inches. Certain large buttressed or fluted trees, one of which, a parakusan, measured 18 feet 4 inches in circumference, are not included in the above measurement.

The measurements of 388 trees indicate the proportion of trees available for timber in forests of this type to be as follows :—

| | |
|---|---|
| Trees, the girths of which range from 30 to nearly 57 inches, from which timber squaring from 6 to nearly 12 inches can be obtained ... | ...44·0 per cent. |
| Trees, 57 inches or over in girth, and capable of squaring timbers 12 inches or more in size | ...14·0 " " |
| Percentage available for timber | ...58·0 " " |

## Type 13.

*Class 4.*—Forests clothing the plains and hills of the slightly elevated country.

*Soil.*—Dark coloured to yellowish sandy clay, mostly derived from slightly ferruginous rocks, and containing more or less humus.

*Locality.*—Forest District No. 3. Barama-Waini.—To obtain the estimated quantities of the forest trees growing in this type, sectional surveys were taken at twelve different places in the abovenamed district.

*Composition of the forests.*—The timber trees include a great many kinds, of which the names of fifty-seven are recorded. The trees vary in number per acre from 130·6 to 200·5, the estimated average number of trees being 160·5 to the acre. The undergrowth consists of numerous young tall trees under 18 inches in girth, amongst which yarri-yarri are very plentiful.

Large palms are absent, but low growing prickly bactris palms are common, forming a dense undergrowth in some places.

### TIMBER TREES.

| PREVAILING TREES.— | Estimated Average number of trees per Acre. | Percentage of trees. |
|---|---|---|
| *Predominant kinds.—* | | |
| 1. Kakaralli ... ... ... ... | 38·4 | 33·5 |
| 2. Haiari-balli ... ... ... ... | 15·3 | |
| *Other commonest kinds—* | | |
| 3. Kauta-balli ... ... ... ... | 9·8 | 33·0 |
| 4. Mora ... ... ... .. ... | 8·9 | |
| 5. Baramalli ... ... ... ... | 7·3 | |
| 6. Trysil or koro-balli ... ... ... | 7·2 | |
| 7. Kauta ... ... ... ... ... | 7·1 | |
| 8. Kurakai ... ... ... ... | 4·7 | |
| 9. Kairu-balli ... ... ... ... | 4·1 | |
| 10. Wallaba (soft and ituri) ... ... ... | 3·9 | |
| Forward ... ... ... | 106·7 | 66·5 |

## TIMBER TREES.—(CONTD.)

| | Estimated Average number of trees per Acre. | Estimated Percentage of Trees. |
|---|---|---|
| Forward ... ... | 106·7 | 66·5 |
| *Trees in lesser numbers—* | | |
| 11. Parakusan ... ... ... ... | 3·3 | 22·6 |
| 12. Silver-balli ... ... ... ... | 2·6 | |
| 13. Maho ... ... ... ... ... | 2·3 | |
| 14. Mora-balli or sand mora ... ... ... | 2·2 | |
| 15. Waladuri or monkey pot ... ... ... | 2·0 | |
| 16. Haimara-kutchi ... ... ... ... | 2·0 | |
| 17. Aramatta ... ... ... ... | 1·8 | |
| 18. Waikey (various varieties) ... ... ... | 1·7 | |
| 19. Aroa-dan or tiger wood ... ... ... | 1·6 | |
| 20. Buhurada ... ... ... ... | 1·6 | |
| 21. Yaruru ... ... ... ... ... | 1·5 | |
| 22. Barabara (hill variety) ... ... ... | 1·5 | |
| 23. Bariri-kutchi ... ... ... ... | 1·4 | |
| 24. Assapoka ... ... ... ... | 1·3 | |
| 25. Mora-balli ... ... ... ... | 1·2 | |
| 26. Crabwood ... ... ... ... | 1·1 | |
| 27. Yuwanarow ... ... ... ... | 1·1 | |
| 28. Bara-danni ... ... ... ... | 1·1 | |
| 29. Bara-manna ... .. ... ... | 1·0 | |
| 30. Doro ... ... ... ... ... | 1·0 | |
| 31. Kaiarima ... ... ... ... | 1·0 | |
| 32. Itchikiboura-balli ... ... ... | 1·0 | |
| 33. Karahura ... ... ... ... | 1·0 | |
| SCARCER TREES.— | | |
| Of these the names of twenty-four kinds were recorded, the better known of which are simarupa, dukalli, purpleheart, fukadi, duka and fotui or phooti ... ... ... | 17·5 | 10·9 |
| Total ... ... ... | 160·5 | 100·0 |

*Summary.*—The numerical proportions of the trees comprising forests of this class as detailed in the tabular form of this type may be recapitulated as follows:—

Commonest trees, composed of ten different kinds ... 66·5 per cent.

Trees in lesser numbers, comprising twenty-three different kinds ... ... ... ... 22·6 „ „

Scarcer trees, widely scattered, and consisting of mo than twenty-four different kinds ...

For further details *vide* Appendix Form No. 8.

*Girths and estimated percentages of the trees available for timber.*—The trees in this type of forest were found to range in girth from 18 to 114 inches, the estimated average girth being 41·6 inches. As derived from the measurements of the girths of 567 trees, the estimated quantity of trees in this type available for timber are as follows:—

| | |
|---|---|
| Trees varying in girth from 30 to nearly 57 inches, and capable of furnishing logs similarly ranging in size from 6 inches to a little under 12 inches square... | 38·4 per cent. |
| Trees of 57 inches or more in girth and of a suitable size for timbers, squaring 12 inches or more ... | 17·1 „ „ |
| Percentage of trees available for timber | 55·5 |

## Type 14.

*Class 4.*—Forests clothing the plains and hills of the slightly elevated country.

*Soil.*—Dark red, ochreous or chocolate coloured lateric clays with sand, derived from diabase and other ferruginous rocks.

*Locality.*—Forest District No. 3—Barama-Waini. The quantities of the forest trees as indicated in this type are estimated from sectional surveys taken at ten different places in the district.

*Composition of the forests.*—The trees consist of many kinds, of which the vernacular names of fifty-four were recorded, the number of trees per acre vary from 108·9 to 182·9, the estimated average number being 151·3 trees. The undergrowth consists of many young trees of the various kinds composing the forests, intermixed with yarri-yarri and low growing prickly bactris palms, and is more or less of an open nature.

### TIMBER TREES.

| | Estimated | |
|---|---|---|
| **Prevailing Trees**— | Average number of trees per acre. | Percentage of trees. |
| *Predominant kinds*— | | |
| 1. Kakaralli ... ... ... ... | 34·3 | 34·8 |
| 2. Kauta-balli ... ... ... ... | 18·3 | |
| *Other commonest kinds*— | | |
| 3. Haiari-balli ... ... ... ... | 13·8 | 31·2 |
| 4. Trysil ... ... ... ... ... | 10·5 | |
| 5. Baramalli ... ... ... ... | 5·8 | |
| 6. Kairu-balli ... ... ... ... | 5·5 | |
| 7. Baramanna ... ... ... ... | 4·4 | |
| 8. Wallaba (soft) ... ... ... ... | 3·6 | |
| 9. Kurakai... ... ... ... ... | 3·6 | |
| Forward ... ... | 99·8 | 66·0 |

## TIMBER TREES.—(CONTD.)

| | Estimated | |
|---|---|---|
| | Average number of trees per Acre. | Percentage of trees. |
| Forward ... ... | 99·8 | 66·0 |
| *Trees in lesser numbers—* | | |
| 10. Mora ... ... ... ... ... | 3·0 | 16·5 |
| 11. Maho ... ... ... ... ... | 2·9 | |
| 12. Aramatta ... ... ... ... | 2·6 | |
| 13. Assapoka ... ... ... ... | 2·2 | |
| 14. Karahura ... ... ... ... | 2·2 | |
| 15. Buhurada ... ... ... ... | 1·9 | |
| 16. Moro-balli or sand mora .. ... ... | 1·9 | |
| 17. Haimara-kutchi ... ... ... ... | 1·6 | |
| 18. Bariri-kutchi ... ... ... ... | 1·6 | |
| 19. Morabukea .. ... ... ... | 1·3 | |
| 20. Crabwood ... ... ... ... | 1·3 | |
| 21. Silver-balli (various) ... ... ... | 1·3 | |
| 22. Purple-heart or Kuruburelli ... ... | 1·2 | |
| SCARCER TREES— | | |
| Of these thirty-two different kinds were distinguished by native names. Amongst these the better known are fotui or photee, parakusan, waikey, kauta, balata-balli or barta-balli, yaruru, locust and kabukalli ... ... | 26·5 | 17·5 |
| Total ... ... | 151·3 | 100·0 |

*Summary.*—The numerical proportions of the various kinds composing this type of forests as previously detailed may be summed up as follows:—

| | |
|---|---|
| Commonest trees comprising nine different kinds | ...66·0 per cent. |
| Trees in lesser numbers made up of thirteen kinds | ...16·5 „ „ |
| Widely scattered trees, of which thirty-two kinds are recorded ... ... ... ... | ...17·5 „ „ |

For further details *vide* Appendix Form No. 9.

*Girths and estimated percentages of the trees available for timber.*—The girths of the trees composing this type of forest range from 18 to 100 inches, their average girth being 39·1 inches.

The measurements of the girths of 364 trees indicate that the proportion of trees in this type serviceable for timber are as follows:—

| | |
|---|---|
| Trees ranging from 30 to nearly 57 inches in girth, of sufficient size for timber squaring from 6 to nearly 12 inches ... ... ... ... | ...41·7 per cent. |
| Trees of 57 inches or more in girth, capable of yielding square hewn timbers of 12 inches or more in size ... ... ... ... | ...12·3 „ „ |
| Percentage of trees available for timber | ...54·0 |

## Type 15.

*Class 4.*—Forests clothing the plains and hills of the slightly elevated country.

*Soil.*—White sand derived from granite, and containing more or less small quantities of humus.

*Locality.*—Forest District No. 3. Barama-Waini.—On the almost level plateau elevated about 160 feet above sea-level, which extends between, and separates the waters flowing to the Barama river from those flowing to the Waini river.

The quantities of the trees as estimated in this type are based on the results of sectional surveys taken at four different places in the forests on the plateau described above.

*Composition of the forests.*—These forests were found to contain more than thirty-nine different kinds of trees.

The trees vary in number from 127·8 to 161·2 per acre, the estimated average number being 146·3 to the acre.

Although soft wallaba predominates, this species contributing nearly 37 per cent. of the forest trees, the forests described under this type are locally known as "Bullet Tree or Balata Forests," on account of the many parts in them that contain bullet trees in more or less abundance.

These forests are of a fairly open character, the undergrowth consisting mostly of the offspring of the various prevailing trees.

Palms were conspicuous by their absence.

TIMBER TREES.

| | Estimated Average number of trees per Acre. | Estimated Percentage of trees. |
|---|---|---|
| PREVAILING TREES.— | | |
| *Predominant kinds.*— | | |
| 1. Wallaba (soft) ... ... ... ... | 53·7 | 36·7 |
| 2. Bullet or balata tree* ... ... ... | 14·9 | 10·2 |
| 3. Kauta-balli ... ... ... ... | 13·1 | 8·9 |
| *Other commonest kinds.*— | | |
| 4. Kairu-balli ... ... ... ... | 6·5 | 19·3 |
| 5. Kakaralli ... ... ... ... | 6·5 | |
| 6. Fukadi ... ... ... ... ... | 4·7 | |
| 7. Balata-balli or Barta-balli ... ... ... | 3·6 | |
| 8. Mora-balli ... ... ... ... | 3·6 | |
| 9. Yaruru ... ... ... ... ... | 3·3 | |
| Forward ... ... | 109·9 | 75·1 |

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* The estimated average quantities and percentage of the bullet trees do not apply generally to the whole area of these forests, but are restricted to the many parts of varying extent in them where bullet trees are most abundant. *Vide* description of "Bullet Tree Forests."

## TIMBER TREES.—(Contd.)

| | Estimated Average number of trees per Acre. | Estimated Percentage of trees. |
|---|---|---|
| Forward ... ... | 109·9 | 75·1 |
| *Trees in lesser numbers.*— | | |
| 10. Baramalli ... ... ... ... | 2·9 | 16·3 |
| 11. Silver-balli (yellow) ... ... ... | 2·9 | |
| 12. Karahura ... ... ... ... | 2·6 | |
| 13. Mora-balli or sand mora ... ... ... | 2·2 | |
| 14. Yellow Wood (so called) ? ... ... ... | 1·8 | |
| 15. Marsi-balli ... ... ... ... | 1·8 | |
| 16. Yekuru silver-balli ... ... ... | 1·8 | |
| 17. Bouragie silver-balli ... ... ... | 1·5 | |
| 18. Kauta ... ... ... ... ... | 1·5 | |
| 19. Kakatara-balli ... ... ... ... | 1·5 | |
| 20. Male bullet tree ... ... ... ... | 1·1 | |
| 21. Buhurada ... ... ... ... | 1·1 | |
| *Scarcer Trees.*— | | |
| Amongst these the following seven kinds are recorded, viz:—parakusan, kurakai, wanasoro, kununa-balli, ituri wallaba, hurawassa and kumatuba ... ... ... ... | 12·6 | 8·6 |
| Total ... ... ... ... | 145·2 | 100·0 |

*Summary.*—The forest trees comprised in this type may be concisely summed up as follows:—

| | |
|---|---|
| Predominant trees, consisting of three different kinds ... | 55·8 per cent. |
| Other commonest kinds, including trees in lesser numbers ... ... ... ... ... | 35·6 „ |
| Scarcer or widely scattered trees, consisting of certain determined kinds and several undetermined kinds | 8·6 „ „ |

For further details *vide* Appendix Form No. 10.

*Girths and estimated percentages of the trees available for timber.*—The girths of the trees of which 183 were measured range from 19·5 to 156 inches, the average girth being 40·8 inches. The measurements of the girths indicate that the percentages of trees of a suitable size for felling for timber were as follows:—

| | |
|---|---|
| Trees having girths of from 30 upwards to nearly 57 inches, and capable of yielding timber corresponding in size from 6 to nearly 12 inches square ... | 48·0 per cent. |
| Trees, the girths of which are 57 inches or more, suitable for square hewn timber of 12 inches or more in size ... ... ... ... ... | 13·7 „ „ |
| Estimated percentage of trees available for timber | 61·7 |

## Type 16.

*Class 4.*—Forests clothing the plains and hills of the slightly elevated country.

*Soil.*—Sand and clay intermixed with varying quantities of humus, and varying in colour from slightly dark to yellow, mostly derived from acidic or slightly ferruginous rocks.

*Locality.*—Forest District No. 4—Waini-Pomeroon, (within the Waini basin.)

Sectional surveys were made at ten different places within this district to determine the estimated quantities of the kinds of trees composing this type of forests.

*Composition of the forests.*—The forest trees comprise a great many kinds, of which forty-eight were recognised and recorded by their local names. The trees were found to vary in number from 108·8 to 204·7 to the acre, the average number being estimated at 134·3 trees per acre.

The undergrowth is fairly open, and consists mostly of many young trees of the prevailing kinds. Palms are practically absent.

### TIMBER TREES.

| PREVAILING TREES— | Estimated Average number of trees per Acre. | Estimated Percentage of trees. |
|---|---|---|
| *Predominant kinds—* | | |
| 1. Kakaralli (various) ... ... ... | 32·4 | 36·5 |
| 2. Kauta-balli ... ... ... | 16·6 | |
| *Other commonest kinds—* | | |
| 3. Haiari-balli ... ... ... | 10·2 | 33·1 |
| 4. Baramalli ... ... ... ... | 8·0 | |
| 5. Kurakai ... ... ... ... | 7·9 | |
| 6. Wallaba (soft) ... ... ... | 5·0 | |
| 7. Mora-balli .. ... ... ... | 3·6 | |
| 8. Trysil or koro-balli ... ... ... | 3·5 | |
| 9. Baramanna ... ... ... | 3·2 | |
| 10. Kairu-balli ... ... ... | 3·1 | |
| *Trees in lesser numbers—* | | |
| 11. Mora ... ... ... ... | 2·8 | 18·7 |
| 12. Parakusan ... ... ... ... | 2·6 | |
| 13. Kabukalli ... ... ... ... | 2·3 | |
| 14. Yaruru ... ... ... ... | 2.3 | |
| 15. Doro ... ... ... ... | 1·8 | |
| 16. Halichi-balli ... ... ... | 1·7 | |
| 17. Buhurada .. ... ... ... | 1·6 | |
| 18. Assapoka ... ... ... ... | 1·4 | |
| 19. Maho ... ... ... ... | 1·3 | |
| 20. Arawiwa ... ... ... ... | 1·3 | |
| 21. Yuwanarow ... ... ... | 1·3 | |
| 22. Black Yarri-yarri .. ... ... | 1·3 | |
| 23. Silver-balli ... ... ... | 1·2 | |
| 24. Bara-bara ... ... ... ... | 1·2 | |
| 25. Bariri-kutshi ... ... ... | 1·0 | |
| Forward ... ... | 118·6 | 88·3 |

## TIMBER TREES.—(CONTD.)

| | Estimated | |
|---|---|---|
| | Average number of trees per Acre. | Percentage of trees. |
| Forward ... ... | 118·6 | 88·3 |
| SCARCER TREES— | | |
| Twenty-three of the scarcer kinds of trees are recorded by their vernacular names. The better known of these are crabwood, maporokong, hurawassa, black balata, waikey, haiowa, purple heart, sibadanni, kauta, warunana, and kirikowa ... ... ... | 15·7 | 11·7 |
| Total ... ... | 134·3 | 100·0 |

*Summary.*—The kinds of trees composing this type may be grouped as follows:—

Commonest trees, consisting of ten different kinds ...69·6 per cent.
Trees in lesser numbers made up of fifteen different kinds ... ... ... ...18·7 ,, ,,
Scarcer trees, twenty-three kinds of which are recorded ... ... ... ...11·7 ,, ,,

For further details *vide* Appendix Form No. 11.

*Girths and estimated percentages of treesa vailable for timber.*—The trees measured in this type ranged in girth from 19 to 192 inches, their average girth being 44·6 inches. The measurements of the girths of 369 trees indicate that the percentage of trees large enough for yielding timber are as follows:—

Trees ranging in girth from 30 to nearly 57 inches suitable in size for furnishing timbers, having a corresponding range in size of from 6 to nearly 12 inches square ... ... ...45·2 per cent.
Trees of 57 inches or more in girth, capable of supplying square hewn timbers of 12 inches or more in size ... ... ... ...15·2 ,, ,,

Percentage of trees available for timber ... ...60·4

### Type 17.

*Class 4.*—Forests clothing the plains and hills of the slightly elevated country.

*Soil.*—Dark red coloured lateritic clay (Limonite) with little sand derived mostly from diabase or other ferruginous rocks.

*Locality*—Forest District No 4. Waini-Pomeroon.

The quantities and kinds of trees in this type are estimated from the results of sectional surveys, taken at six different places within the abovementioned district.

*Composition of the forests.*—Of the many kinds of trees composing this type of forest, thirty-five are recorded by their vernacular names. The number of trees to the acre range from 120·0 to 182·9, the estimated average number being 141·5 trees.

The undergrowth consists mostly of plants and young trees of the prevailing kinds intermixed with yarri-yarri, with low prickly bactris palms in places.

## TIMBER TREES.

| | Estimated | |
|---|---|---|
| | Average number of trees per Acre. | Percentage of trees. |
| PREVAILING TREES.— | | |
| *Predominant kinds.*— | | |
| 1. Kakaralli ... ... ... ... | 46·4 | 32·8 |
| *Other commonest kinds.*— | | |
| 2. Kauta-balli ... ... ... ... | 17·6 | 38·2 |
| 3. Haiari-balli ... ... ... ... | 16·4 | |
| 4. Kairu-balli ... ... ... ... | 7·2 | |
| 5. Trysil or Koro-balli ... ... ... | 6·6 | |
| 6. Yaruru ... ... ... ... ... | 3·2 | |
| 7. Wallaba (soft and ituri) ... ... ... | 3·0 | |
| *Trees in lesser numbers.*— | | |
| 8. Aroa-dan or tiger wood ... ... ... | 2·9 | 17·5 |
| 9. Baramalli ... ... ... ... | 2·7 | |
| 10. Assapoka ... ... ... ... | 2·5 | |
| 11. Black Balata ... ... ... ... | 2·3 | |
| 12. Kurakai ... ... ... ... | 2.2 | |
| 13. Ariwiwa ... ... ... ... | 2·0 | |
| 14. Waikey ... ... ... ... ... | 2·0 | |
| 15. Halichi-balli ... ... ... ... | 1·5 | |
| 16. Baradanni ... ... ... ... | 1·5 | |
| 17. Maho ... ... ... ... ... | 1·5 | |
| 18. Mora-balli ... ... ... ... | 1·5 | |
| 19. Siba-danni ... ... ... ... | 1.2 | |
| 20. Wadaduri or monkey pot ... ... ... | 1·0 | |
| SCARCER TREES.— | | |
| These include fifteen different kinds known by native names. Amongst them were kauta, mora, aramatta, coffee mortar or naharu, suradanni and crabwood ... ... ... | 16·3 | 11·5 |
| Total ... ... ... ... | 141·5 | 100·0 |

*Summary.*—The trees composing this type of forest may be briefly classed as follows:—

Commonest trees consisting of seven different kinds ... 71·0 per cent.

Trees in lesser numbers, comprising thirteen different kinds ... ... ... ... ... 17·5 ,, ,,

Scarce trees of more than fifteen different kinds ... 11·5 ,, ,,

Further details will be found in Appendix Form No. 12.

*Girths and estimated percentages of the trees available for timber.*—The girths of the forest trees representing this type from measurements made on 225 trees, were found to range from 13 to 204 inches, the average girth being 42·6 inches.

The estimated number of trees having sufficiently large girths for furnishing supplies of timber were as follows :—

| | |
|---|---|
| Trees ranging in girth from 30 to nearly 57 inches, corresponding in size to logs measuring from 6 to nearly 12 inches square ... ... ... | 46.6 per cent. |
| Trees of 57 inches or more in girth, suitable for squaring hewn timber having a minimum size of 12 inches square ... ... ... ... | 10·7 „ „ |
| Percentage of trees available for timber ... ... | 57·3 |

## Type 18.

*Class 4.*—Forests clothing the plains and hills of the slightly elevated country.

*Soil.*—Sand with clay varying in colour from dark to light yellow, derived mostly from acidic or non-ferruginous rocks, and containing some humus.

*Locality.*—Forest District No. 4—Waini-Pomeroon. (Within the Pomeroon river basin.)

The estimates of the quantities of the various forest trees in this forest type are based on the averages obtained from sectional surveys made at six different places within the district.

*Composition of the forests.*—The vernacular names of thirty-nine different kinds of trees are recorded in this type. The trees vary in number from 109·7 to 138·7 per acre, the estimated average being 127·7 trees.

Dense undergrowth occurs in places composed of young trees of the various kinds growing in this forest type, and intermixed with an abundant growth of yarri-yarri.

Palms are almost entirely absent.

### TIMBER TREES.

| | Estimated | |
|---|---|---|
| PREVAILING TREES— | Average number of trees per acre. | Percentage of trees. |
| *Predominant kinds—* | | |
| 1. Kakaralli (various species) ... ... | 42.4 | 33·2 |
| *Other commonest kinds—* | | |
| 2. Kauta-balli ... ... ... | 11·3 | 42·3 |
| 3. Haiari-balli ... ... ... | 10·8 | |
| 4. Mora ... ... ... ... | 8·4 | |
| 5. Trysil or moro-balli ... ... ... | 8·0 | |
| 6. Parakusan... ... ... ... | 4·5 | |
| 7. Kurakai ... ... ... ... | 3·8 | |
| 8. Kairu-balli ... ... ... | 3·8 | |
| 9. Yaruru ... ... ... ... | 3·5 | |
| Forward ... ... | 96·5 | 75.5 |

## TIMBER TREES.—(CONTD.)

| | Estimated Average number of trees per Acre. | Estimated Percentage of trees. |
|---|---|---|
| Forward ... ... | 96·5 | 75·5 |
| *Trees in lesser numbers—* | | |
| 10. Ruli ... ... ... ... | 2·8 | 14·6 |
| 11. Bullet Tree ... ... ... | 2·8 | |
| 12. Assapoka ... .. ... ... | 2·4 | |
| 13. Baramalli ... ... ... ... | 2·1 | |
| 14. Wallaba (soft and ituri) ... ... | 2·1 | |
| 15. Crabwood ... ... ... ... | 2·0 | |
| 16. Haimara-kutshi ... ... ... | 2·0 | |
| 17. Surulu-borieng ... ... | 1·2 | |
| 18. Killikowa or hill dalli ... ... | 1·2 | |
| SCARCER TREES— | | |
| Twenty-one of these are distinguished by native names. The better known amongst them are: red cedar, maho, mora-balli, silver-balli, aramatta, tibikushi, sarebebe, locust or simiri, duka, itchikiboura-balli and waikey (shirada). | 12·6 | 9·9 |
| Total ... ... | 127·7 | 100·0 |

*Summary.*—The numerical proportions of the trees composing the forest as detailed under this type may be summarised as follows:—

| | |
|---|---|
| Commonest trees, composed of nine different kinds ... | 75·5 per cent. |
| Trees in lesser numbers also composed of nine different kinds ... ... ... ... .. | 14·6 „ „ |
| Scarcer trees comprising over twenty-one kinds ... | 9·9 „ „ |

Further details are recorded in Appendix Form No. 13.

*Girths and estimated percentages of the trees available for timber.*—The girths of 224 trees measured in this type of forest were found to range from 21 to 149 inches, the estimated average girth being 49·2 inches.

Measurements of their girths indicate the quantity of the trees large enough in size for supplying timber to be as follows:—

| | |
|---|---|
| Trees ranging in girth from 30 to nearly 57 inches, suitable for timbers correspondingly ranging in size from 6 to nearly 12 inches square... ... | 45·0 per cent. |
| Trees of 57 inches or more in girth, capable of supplying square hewn timbers of 12 inches or more in size ... ... ... ... ... | 24·6 „ „ |
| Percentage of trees available for timber ... ... | 69·6 |

# FORESTS OF THE SWAMP LANDS, NORTH WESTERN DISTRICT.

## APPENDIX FORM No. 1.

### INSPECTION OF FORESTS—BRITISH GUIANA.

Type 1.—*Class 2.*—Combination of 20 Sectional Surveys.

*District*—North Western.

*Locality*—River Valley Lands.

*Conditions*—Flat lands bordering the rivers, inundated at high tide.

| Vernacular Names. | Girths of Trees in Sections. | | | Estimated Number of Trees in a Square Mile. | Number of Trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Corkwood or Ichikiboura ... | 18·4 | 60·0 | 37·0 | 14,603 | 22·81 |
| Trysil ... ... ... | 19·0 | 57·7 | 30·5 | 13,211 | 20·63 |
| Mora ... ... ... | 20·0 | 118·0 | 44·9 | 7,556 | 11·80 |
| Manni ... ... ... | 26·3 | 72·0 | 42·2 | 7,301 | 11·40 |
| Coffee Mortar or naharu ... | 22·0 | 100·0 | 53·9 | 6,010 | 9·40 |
| Crabwood ... ... ... | 16·0 | 65·0 | 36·9 | 5,228 | 8·16 |
| Kurakai ... ... ... | 29·3 | 49·0 | 37·8 | 3,115 | 4·86 |
| Wallaba (mostly soft) ... | ... | ... | ... | 2,872 | 4·49 |
| Sarebebe or water wallaba... | 26·0 | 71·0 | 39·4 | 2,778 | 4·33 |
| Kairu-balli ... ... ... | 21·7 | 55·5 | 32·1 | 2,008 | 3·14 |
| Dautaraba ... ... ... | 18·0 | 45·0 | 25·9 | 1,859 | 2·90 |
| Dalli... ... ... ... | 23·5 | 75·0 | 42·0 | 1,741 | 2·71 |
| Maho (broad leaf) ... ... | 21·0 | 103·5 | 43·8 | 1,713 | 2·67 |
| Arisaura ... ... ... | 22·5 | 60·0 | 36·8 | 1,636 | 2·56 |
| Buhurada ... ... ... | 20·5 | 66·3 | 41·0 | 1,383 | 2·16 |
| Warikuri or white cedar ... | ... | ... | ... | 1,294 | 2·03 |
| Mangrove ... ... ... | ... | ... | ... | 1,286 | 2·01 |
| Wild Cocoa or konaheri ... | ... | ... | ... | 1,265 | 1·99 |
| Takariwa or Hua-hua ... | 30·0 | 61·0 | 49·5 | 997 | 1·56 |
| Kakaralli, mostly long pod.. | 29·3 | 54·0 | 40·8 | 973 | 1·52 |
| Kauta-balli ... ... ... | 23·7 | 40·0 | 31·8 | 600 | 0·94 |
| Barabara ... ... ... | ... | ... | 27·5 | 478 | 0·74 |
| Waikey ... ... ... | 22·5 | 26·5 | 24·5 | 439 | 0·69 |
| Wadaduri or monkey pot ... | 21·5 | 26·5 | 24·8 | 385 | 0·61 |
| Parakusan ... ... ... | 19·0 | 54·0 | 36·5 | 372 | 0·58 |
| Bullet or balata trees ... | 49·0 | 72·0 | 58·1 | 370 | 0·57 |
| Kauta ... ... ... | ... | ... | ... | 360 | 0·56 |
| Yarri-yarri ... ... ... | ... | ... | ... | 300 | 0·47 |
| Kumaka-balli ... ... | 37·2 | 70·0 | 53·7 | 279 | 0·44 |
| Little Bullet Tree ... ... | 19·0 | 36·0 | 27·5 | 279 | 0·44 |
| Forward ... | | | | 82,691 | 129·17 |

## APPENDIX FORM No. 1.—(Contd.)

Type 1.—*Class 2.*—Combination of 20 Sectional Surveys.—(Contd.)

| Vernacular Names. | Girths of Trees in Sections. | | | Estimated Number of Trees in a Square Mile. | Number of Trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Forward ... | ... | ... | ... | 82,691 | 129·17 |
| Baramalli ... ... ... | ... | ... | ... | 194 | 0·30 |
| Benda or aliku ... ... | 24·5 | 27·3 | 25·9 | 185 | 0·29 |
| Trumpet Tree ... ... | ... | ... | ... | 169 | 0·27 |
| Karahara ... ... ... | ... | ... | ... | 164 | 0·26 |
| Wild maran ... ... | ... | ... | ... | 147 | 0·23 |
| Duka ... ... ... | ... | ... | ... | 144 | 0·22 |
| Kanakudi-balli ... ... | ... | ... | ... | 139 | 0·21 |
| Silver-balli (various) ... | ... | ... | ... | 135 | 0·21 |
| Kwako ... ... ... | ... | ... | ... | 131 | 0·21 |
| Dowban ... ... ... | ... | ... | ... | 93 | 0·15 |
| Hawadanni kararalli ... | ... | ... | ... | 93 | 0·15 |
| Kokeriti-balli ... ... | ... | ... | ... | 93 | 0·15 |
| Olu ... ... ... ... | ... | ... | ... | 93 | 0·15 |
| Assapoka ... ... ... | ... | ... | ... | 93 | 0·15 |
| Dukalli ... ... ... | ... | ... | ... | 89 | 0·13 |
| Mabua rubber tree ... | ... | ... | ... | 67 | 0·10 |
| Naidu or Shirabulli-balli ... | ... | .. | ... | 67 | 0·10 |
| Hurawassa ... ... ... | ... | ... | ... | 60 | 0·09 |
| Sura-danni ... ... ... | ... | ... | ... | 56 | 0·09 |
| Waramia ... ... ... | ... | ... | ... | 42 | 0·06 |
| Yuwanarow ... ... ... | ... | ... | ... | 33 | 0·06 |
| Ichiki-boura-balli ... ... | ... | ... | ... | 22 | 0·05 |
| Shirua waikey ... ... | ... | ... | ... | 22 | 0·05 |
| Trees (the names of which were unobtainable) ... | 34·5 | 51·0 | 42·7 | 2,817 | 4·40 |
| | | | | 87,839 | 137·25 |
| | Average | girth ... | 39·7 | | |

Note.—The girths of the trees were not measured in all the sections constituting this Type.

### Palms.

| | | | | | |
|---|---|---|---|---|---|
| Manicole (clumps) ... ... | ... | ... | ... | 30,599 | 47·8 |
| Truli ... ... ... | ... | ... | ... | 17,551 | 27·4 |
| Turu ... ... ... | ... | ... | ... | 3,340 | 5·3 |
| Manicole (single) ... ... | ... | ... | ... | 1,858 | 2·9 |
| Kokerite ... ... ... | ... | .. | ... | 846 | 1·3 |
| Buba ... ... ... | .. | ... | ... | 329 | 0·5 |
| | | | | 54,523 | 85·2 |

## APPENDIX FORM No. 2.

### INSPECTION OF FORESTS—BRITISH GUIANA.

**Type 2.**—*Class 2.*—Combination of 3 Sectional Surveys.

*District.*—North Western District.

*Locality.*—Waini and Barama Rivers, 3 places, Sekarahanna, Kunana-balli, and Waiwa.

*Conditions.*—Flat lands bordering the lower courses of the tributaries, below tidal level, and on which water almost constantly rests.

| Vernacular Names. | Girths of Trees in Sections. | | | Estimated Number of Trees in a Square Mile. | Number of Trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Mora... ... ... ... | 21·7 | 90·0 | 46·1 | 26,949 | 42·1 |
| Trysil ... ... ... | 21·0 | 44·7 | 29·3 | 10,222 | 15·9 |
| Corkwood ... ... ... | 31·5 | 58·0 | 41·1 | 9,912 | 15·4 |
| Sarebebe ... ... .. | 24·7 | 52·0 | 34·1 | 6,505 | 10·2 |
| Arisaura ... ... .. | 32·0 | 68·0 | 47·7 | 3,717 | 5·8 |
| Dalli... ... ... ... | 21·0 | 54·0 | 31·4 | 3,407 | 5·3 |
| Manni ... ... ... | 31·0 | 66·5 | 48·3 | 3,097 | 4·8 |
| Buhurada ... ... .. | 25·5 | 48·5 | 32·0 | 2,475 | 3·8 |
| Hurawassa ... .. ... | 32·5 | 44·0 | 38·3 | 1,858 | 2·9 |
| Maho ... ... ... | 25·0 | 30·5 | 27·8 | 1,549 | 2·4 |
| Takariwa ... ... ... | 40·5 | 49·0 | 44·7 | 1,239 | 1·9 |
| Manari-balli ... ... | Single | trees. | 62·0 | 929 | 1·5 |
| Waikey ... ... .. | | | 21·7 | 929 | 1·5 |
| Coffee Mortar or naharu ... | | | 42·0 | 929 | 1·5 |
| Wadaduri ... ... ... | | | 23·0 | 929 | 1·5 |
| Kauta-balli ... ... ... | | | 29·0 | 620 | 1·0 |
| Dukalli ... ... ... | | | 20·7 | 620 | 1·0 |
| Baramalli ... ... ... | | | 56·5 | 620 | 1·0 |
| Kurakai ... ... ... | | | 34·7 | 620 | 1·0 |
| Kairu-balli ... ... ... | | | 32·7 | 620 | 1·0 |
| Dautaraba ... ... ... | | | 21·5 | 620 | 1·0 |
| Trees,—the names of which were unobtainable ... | 20·0 | 53·5 | 34·9 | 3,098 | 4·8 |
| | | | | 81,464 | 127·3 |
| | Average | girth. | 36·3 | | |

**Palms.**

| | | | | | |
|---|---|---|---|---|---|
| Manicole (clumps) ... ... | ... | ... | ... | 13,939 | 21·8 |
| Turu... ... ... ... | ... | ... | ... | 6,195 | 9·7 |
| Manicole (single) ... ... | ... | ... | | 2,478 | 3·8 |
| | | | | 22,612 | 35·3 |

## APPENDIX FORM No. 3.

## INSPECTION OF FORESTS—BRITISH GUIANA.

TYPE 4.—*Class 4*, (Mora Forests), Combination of 16 Sectional Surveys.

*District.*—North Western District.

*Locality.*—Upper Waini and Barama Rivers.

*Conditions.*—Forests bordering the rivers and covering the flat lands slightly raised above the tidal level, and more or less inundated during the wet season.

| Vernacular Names. | Girth of Trees in Sections. | | | Estimated Number of Trees in a Square Mile. | Number of Trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Mora... | 19·0 | 120·0 | 45·9 | 33,334 | 52·1 |
| Crabwood | 18·2 | 80·0 | 42·3 | 10,013 | 15·6 |
| Trysil | 19·5 | 54·0 | 31·5 | 6,029 | 9·4 |
| Corkwood | 21·7 | 54·0 | 34·3 | 3,107 | 4·8 |
| Kakaralli (various sp.) | 19·0 | 75·0 | 33·3 | 2,895 | 4·3 |
| Haiari-balli | 19·5 | 87·7 | 38·8 | 2,114 | 3·3 |
| Coffee Mortar or Naharu | 22·5 | 78·0 | 53·1 | 2,021 | 3·1 |
| Manni | 19·0 | 67·3 | 40·8 | 1,510 | 2·4 |
| Sarebebe | 21·6 | 57·0 | 40·0 | 1,045 | 1·6 |
| Buhurada | 15·0 | 30·8 | 28·8 | 929 | 1·4 |
| Waikey | 26·5 | 72·0 | 41·9 | 767 | 1·2 |
| Parakusan | 19·0 | 90·0 | 43·7 | 744 | 1·2 |
| Aramatta | 20·5 | 61·0 | 36·6 | 709 | 1·1 |
| Kauta-balli | 23·7 | 40·0 | 31·2 | 697 | 1·1 |
| Kauta | 21·0 | 46·0 | 33·7 | 668 | 1·0 |
| Kurakai | 27·5 | 38·2 | 39·1 | 581 | 0·9 |
| Little Bullet Tree | 19·0 | 32·0 | 23·7 | 581 | 0·9 |
| Maho | 22·5 | 60·0 | 41·6 | 488 | 0·8 |
| Bullet or Balata Tree | 33·0 | 60·0 | 41·8 | 465 | 0·7 |
| Rose of the Mountain | 19·0 | 28·0 | 21·9 | 337 | 0·5 |
| Naidu or Shera-bulli-balli | 21·0 | 37·2 | 28·7 | 302 | 0·5 |
| Benda or Aliku | 22·0 | 23·5 | 22·7 | 302 | 0·5 |
| Dautaraba | 26·0 | 26·3 | 26·1 | 232 | 0·4 |
| Bara-bara (swamp) | 27·5 | 27·5 | 27·5 | 232 | 0·4 |
| Kairu-balli | 22·2 | 26·8 | 24·5 | 232 | 0·4 |
| Sura-danni | 23·0 | 83·5 | 53·2 | 209 | 0·3 |
| Baramalli | 36·0 | 58·0 | 46·7 | 197 | 0·3 |
| Wadaduri | Single | Trees. | 26·5 | 186 | 0·3 |
| Hubu or Hog Plum | | | 108·0 | 140 | 0·2 |
| Humatuba | | | 21·5 | 140 | 0·2 |
| Doro | 19·5 | 26·0 | 22·7 | 140 | 0·2 |
| Wadara | Single | Trees. | 47·0 | 116 | 0·2 |
| Warakurri or White Cedar | | | 62·0 | 116 | 0·2 |
| Forward | ... | ... | | 71,578 | 111·5 |

## APPENDIX FORM No. 3.—(CONTINUED.)

TYPE 4.—*Class 4*, (Mora Forests), Combination of 16 Sectional Surveys.

| Vernacular Names. | Girth of Trees in Sections. | | | Estimated Number of Trees in a Square Mile. | Number of Trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Forward | ... | ... | ... | 71,578 | 111·5 |
| Yellow Silver-balli | Single | Trees. | 36·5 | 116 | 0·2 |
| Arisaura | | | 30·0 | 116 | 0·2 |
| Mora-balli | | | 25·8 | 70 | 0·1 |
| Arara | | | 21·0 | 70 | 0·1 |
| Hawa-danni Kakaralli | | | 28·0 | 58 | 0·1 |
| Trees—(the names of which were unobtainable) | 20·5 | 38·2 | 29·5 | 767 | 1·2 |
| | | | | 72,775 | 113·4 |
| | Average | girth. | 36·7 | | |
| PALMS. | | | | | |
| Manicole (clumps) | ... | ... | ... | 10,477 | 16·4 |
| do. (single) | ... | ... | ... | 1,394 | 2·2 |
| Turu | ... | ... | ... | 1,045 | 1·6 |
| Lectris (small species) | ... | ... | ... | 349 | 0·5 |
| | | | | 13,265 | 20·7 |

## APPENDIX FORM No. 4.

### INSPECTION OF FORESTS—BRITISH GUIANA.

TYPE 5.—*Class 4*—Combination of 8 Sectional Surveys.

*District*—North Western District.

*Locality*—Basins of the Waini and Barama rivers.

*Conditions*—Forests bordering the lower courses of the creeks or tributaries situate beyond the tidal influence.

| Vernacular Names. | Girths of trees in Sections. | | | Estimated number of trees in a Square Mile. | Number of trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Mora ... ... ... | 19·5 | 125·0 | 49·0 | 34,279 | 53·6 |
| Kakaralli ... ... ... | 18·5 | 78·0 | 36·1 | 6,819 | 10·6 |
| Haiari-balli ... ... ... | 21·0 | 98·5 | 60·9 | 5,599 | 8·5 |
| Parakusan ... ... ... | 26·7 | 216·0 | 47·6 | 4,786 | 7·4 |
| Trysil ... ... ... | 25·7 | 57·0 | 34·0 | 3,415 | 5·3 |
| Kurakai ... ... ... | 20·7 | 37·0 | 29·5 | 3,067 | 4·8 |
| Baramalli ... ... ... | 22·0 | 63·0 | 29·4 | 2,253 | 3·5 |
| Corkwood ... ... ... | 25·0 | 44·0 | 35·5 | 1,673 | 2·6 |
| Arramatta ... ... ... | 23·0 | 30·2 | 26·1 | 1,208 | 1·9 |
| Crabwood ... ... ... | 24·0 | 96·0 | 47·1 | 1,045 | 1·6 |
| Yarri-yarri or arara (black) | 20·2 | 28·0 | 22·9 | 697 | 1·1 |
| Waikey ... ... ... | 22·5 | 51·0 | 33·3 | 662 | 1·0 |
| Shera-bulli-balli or naidu ... | 20·2 | 23·5 | 21·8 | 581 | 0·9 |
| Kauta ... ... ... | 23·2 | 33·0 | 28·1 | 464 | 0·7 |
| Fotui or phooti ... ... | Single | trees. | 64.0 | 348 | 0·6 |
| Itikiboura-balli ... ... | | | 31·5 | 348 | 0·6 |
| Maho ... ... ... | | | 67·0 | 348 | 0·6 |
| Bara-danni ... ... ... | | | 57·0 | 348 | 0·6 |
| Assapoka ... ... ... | | | 22·7 | 232 | 0·4 |
| Aroa-dan or tiger wood ... | | | 30·0 | 232 | 0·4 |
| Bariri-kutshi ... ... | | | 23·0 | 232 | 0·4 |
| Wadara ... ... ... | | | 23·0 | 232 | 0·4 |
| Haimara-kutshi ... ... | | | 32·0 | 232 | 0·4 |
| Wadaduri ... ... ... | | | 153·5 | 232 | 0·4 |
| Sura-danni ... ... ... | | | 45·0 | 174 | 0·3 |
| Kaiarima ... ... ... | | | 22·3 | 174 | 0·3 |
| Silver-balli ... ... ... | | | 20·5 | 139 | 0·2 |
| Trees (the names of which were unobtainable) ... | 23·3 | 97·5 | 49·1 | 1,324 | 2·0 |
| | | | | 71,143 | 111·1 |
| | Average | girth ... | 40·8 | | |

# APPENDIX FORM No. 5.

## INSPECTION OF FORESTS.—BRITISH GUIANA

TYPE 6.—*Class* 2.—(Crabwood), Combination of 14 Sectional Surveys.

*District.*—North Western District.

*Locality.*—Lower courses of the Kiatuma, Barima, Morebo, Waini and Barama rivers.

*Conditions.*—Forests bordering the rivers and covering the low alluvial flats, subject to inundation at high tides.

| Vernacular Names. | Girths of trees in Sections. | | | Estimated number of trees in a Square Mile. | Number of trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Corkwood ... ... ... | 18·5 | 60·0 | 37·1 | 15,291 | 23·9 |
| Trysil ... ... ... | 19·0 | 57·7 | 32·2 | 13,323 | 20·8 |
| Mora ... ... ... | 20·0 | 118·0 | 46·0 | 7,352 | 11·5 |
| Crabwood ... ... ... | 16·0 | 65·0 | 37·9 | 7,202 | 11.3 |
| Manni ... ... ... | 26·3 | 72·0 | 44·7 | 6,317 | 9·9 |
| Coffee Mortar ... ... | 22·0 | 100·0 | 54·2 | 5,933 | 9·2 |
| Kurakai ... ... .. | 29·3 | 49·0 | 37·8 | 3,298 | 5·1 |
| Kairu-balli ... ... ... | 21·7 | 55·5 | 32·2 | 2,343 | 3·6 |
| Sarebebe ... ... ... | 26·0 | 71·0 | 40·4 | 2,230 | 3·5 |
| Mangrove ... ... ... | ... | ... | ... | 1,838 | 2·9 |
| Dautaraba ... ... ... | 18·0 | 45·0 | 25·9 | 1,726 | 2·7 |
| Maho (broad leaf) | 21·0 | 103·5 | 43·8 | 1,707 | 2·7 |
| Dalli ... ... ... ... | 23·5 | 75·0 | 42·0 | 1,692 | 2·6 |
| Buhurada ... ... ... | 20·5 | 66·3 | 41·0 | 1,527 | 2·4 |
| Wild cacao ... ... ... | ... | ... | ... | 1,400 | 2·2 |
| Takariwa | 30·0 | 61·0 | 49·5 | 1,339 | 2·1 |
| Arisaura ... | 22·5 | 60·0 | 43·6 | 781 | 1·2 |
| Kakaralli, (long pod) | 29·3 | 54·0 | 42·0 | 690 | 1·1 |
| Bullet or balata tree | 49·0 | 72·0 | 60·5 | 526 | 0·8 |
| Kumaka-balli ... .. | 37·2 | 70·0 | 49·6 | 398 | 0·6 |
| Little bullet tree ... ... | Single trees. | | | 265 | 0·4 |
| Benda or aliku ... ... | | | | 265 | 0·4 |
| Warakurri or white cedar .. | | | | 261 | 0·4 |
| Wild maran ... ... | | | | 211 | 0·3 |
| Kwako ... ... ... | | | | 199 | 0·3 |
| Kamakudi-balli ... ... | | | | 188 | 0·3 |
| Kurahara ... .. ... | | | | 148 | 0·3 |
| Howa-danni kakaralli ... | | | | 133 | 0·2 |
| Olu ... ... ... ... | | | | 133 | 0·2 |
| Silver-balli, (various spp.) | | | | 133 | 0·2 |
| Assapoka ... ... ... | | | | 133 | 0·2 |
| Kowbar (soft wood) | | | | 133 | 0·2 |
| Waikey ... ... .. | | | | 133 | 0·2 |
| Forward .. | .. | .. | | 79·248 | 123·7 |

## APPENDIX FORM No. 5.—(CONTINUED.)

TYPE 6.—*Class 2.*—(Crabwood) Combination of 14 Sectional Surveys.—(Continued.)

| Vernacular Names. | Girth of trees in Sections. | | | Estimated number of trees in a Square Mile. | Number of trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Forward ... | ... | ... | ... | 79·248 | 123·7 |
| Kanuna-balli ... ... | Single | trees. | | 133 | 0·2 |
| Kokeriti-balli ... ... | | | | 133 | 0·2 |
| Wadaduri ... ... ... | | | | 133 | 0·2 |
| Sura-danni ... ... ... | | | | 80 | 0·1 |
| Bara-bara (swamp) ... | | | | 43 | 0·1 |
| Pump wood or wanasoro ... | | | | 43 | 0·1 |
| Itiki-boura-balli ... ... | | | | 31 | 0·1 |
| Shirua ... ... ... | | | | 31 | 0·1 |
| Trees, (the names of which were unobtainable) ... | 20·0 | 53·5 | ... | 1,163 | 1·8 |
| | | | | 81,038 | 126·6 |
| | Average | girth ... | 40·0 | | |

PALMS.

| | | | | | |
|---|---|---|---|---|---|
| Manicole (clumps) ... ... | ... | .. | ... | 33,799 | 52·8 |
| Truli ... ... ... | ... | ... | ... | 15,630 | 24·4 |
| Turu... ... ... ... | ... | ... | ... | 3,565 | 5·6 |
| Manicole (single) ... ... | ... | ... | ... | 2,716 | 4·3 |
| Kokerite ... ... ... | ... | ... | ... | 1,236 | 1·9 |
| Buba ... ... ... | ... | ... | ... | 215 | 0·3 |
| | | | | 57,161 | 89·3 |

# FORESTS ON THE SLIGHTLY ELEVATED OR HILLY LANDS, NORTH WESTERN DISTRICT.

## APPENDIX FORM No. 6.

## INSPECTION OF FORESTS—BRITISH GUIANA.

TYPE 11.—*Class 4.*—Combination of 8 Sectional Surveys.

*District*—North-Western District.

*Locality*—Forest District No. 2, Barima-Barama.

*Conditions*—Forests clothing the plains and hills of the slightly elevated country.

| Vernacular Names. | Girths of trees in Sections. | | | Estimated number of trees in a Square Mile. | Number of trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Kakaralli ... ... ... | 18·2 | 73·2 | 36·1 | 22,419 | 35·0 |
| Haiari-balli ... ... ... | 22·0 | 79·5 | 39·7 | 9,409 | 14·7 |
| Kauta-balli ... ... ... | 21·0 | 67·5 | 39·7 | 7,550 | 11·8 |
| Parakusan ... ... ... | 28·0 | 120·0 | 67·0 | 5,343 | 8·4 |
| Kairu-balli ... ... ... | 19·0 | 30·2 | 25·2 | 4,878 | 7·6 |
| Kurakai | 20·0 | 60·0 | 32·0 | 3,368 | 5·3 |
| Mora... ... ... ... | 20·0 | 72·0 | 42·1 | 2,555 | 4·0 |
| Baramalli ... ... ... | 20·5 | 69·5 | 41·1 | 2,555 | 4·0 |
| Baramanna ... ... .. | 21·0 | 52·7 | 35·8 | 1,742 | 2·7 |
| Yaruru ... ... | 25·0 | 67·5 | 50·2 | 1,742 | 2·7 |
| Greenheart * ... ... | 21·2 | 92·5 | 57·9 | 1,625 | 2·5 |
| Arara ... ... ... | 19·5 | 27·0 | 22·9 | 1,625 | 2·5 |
| Ariwiwa | 19·0 | 33·2 | 24·4 | 1,625 | 2·5 |
| Wallaba ... ... .. | 27·0 | 54·2 | 41·1 | 1,510 | 2·4 |
| Halichi-balli ... ... | 20·0 | 73·2 | 35·9 | 1,510 | 2·4 |
| Bariri-kutshi ... ... | 20·0 | 40·0 | 27·2 | 1,510 | 2·3 |
| Maho... ... ... ... | 27·7 | 47·0 | 40·2 | 1,394 | 2·2 |
| Assapoka ... ... ... | 22·0 | 81·5 | 48·9 | 1,277 | 2·0 |
| Kauta ... ... ... | 19·7 | 33·0 | 23·4 | 1,161 | 1·8 |
| Kabukalli ... ... ... | 29·2 | 91·5 | 60·8 | 942 | 1·5 |
| Mora-balli ... ... ... | 19·5 | 24·5 | 21·8 | 929 | 1·4 |
| Black balata ... ... | 27·0 | 130·0 | 72·2 | 813 | 1·3 |
| Bara-bara ... ... ... | 27·0 | 36·2 | 31·6 | 697 | 1·1 |
| Wanasoro or pump wood . | 37·0 | 54·5 | 46·0 | 697 | 1·1 |
| Wadaduri ... ... ... | 31·5 | 63·0 | 47·2 | 697 | 1·1 |
| Sura-danni ... ... ... | 49·0 | 53·0 | 51·0 | 581 | 0·9 |
| Aroa-dan ... ... ... | 31·3 | 39·0 | 35·1 | 581 | 0·9 |
| Doro... ... ... ... | Single trees. | | 33·5 | 349 | 0·6 |
| Silver-balli ... ... ... | | | 20·0 | 349 | 0·6 |
| Futui or phooti ... ... | | | 22·8 | 349 | 0·6 |
| Forward ... ... | ... | .. | ... | 81,782 | 127·9 |

* Occurs locally in a few places only.

## APPENDIX FORM No. 6.—(CONTD.)

TYPE 11.—*Class 4.*—Combination of 8 Sectional Surveys—(Contd.)

| Vernacular Names. | Girths of trees in Sections. | | | Estimated number of trees in a Square Mile. | Number of trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Forward ... ... | ... | ... | ... | 81,782 | 127·9 |
| Trysil ... ... ... | Single | trees. | 29·0 | 348 | 0·6 |
| Bara-danni ... ... ... | | | 29·0 | 348 | 0·6 |
| Moro-balli or sand mora ... | | | 21·5 | 348 | 0·6 |
| Mamuri-balli ... ... | | | 23·0 | 348 | 0·6 |
| Balata-balli ... ... ... | | | 41·5 | 348 | 0·5 |
| Haimara-kutshi ... ... | | | 27·0 | 348 | 0·5 |
| Purple heart ... ... | | | 46·5 | 348 | 0·5 |
| Shera-bulli-balli or naidu | | | 22·0 | 348 | 0·5 |
| Awasakule ... ... ... | | | 23·5 | 348 | 0·5 |
| Kulishiri ... ... ... | | | 21·7 | 348 | 0·5 |
| Yuwanarow .. ... ... | | | 36·0 | 232 | 0·4 |
| Waikey ... ... ... | | | 54·0 | 232 | 0·4 |
| Hurawassa ... ... ... | | | 69·0 | 232 | 0·4 |
| Trees (the names of which were unobtainable) | 22·0 | 72·0 | 32·4 | 3,601 | 5·6 |
| | | | | 89,559 | 140·1 |
| | Average | girth ... | 37·5 | | |

PALMS.

| | | |
|---|---|---|
| Turu ... ... ... ... .. | 348 | 0·6 |

## APPENDIX FORM No. 7.

### INSPECTION OF FORESTS—BRITISH GUIANA.

TYPE 12.—*Class 1.*—Combination of 10 Sectional Surveys.

*District.*—North Western District.

*Locality.*—Forest District No. 3, Barama—Waini, and Waini to Manawarin, Moruca river.

*Conditions.*—Higher valley lands of rivers and tributaries, sometimes inundated by torrential rains or floods.

| Vernacular Names. | Girths of trees in Sections. | | | Estimated number of trees in a Square Mile. | Number of trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Kakaralli | 19·0 | 63·5 | 32·9 | 14,961 | 23·4 |
| Haiari-balli | 19·2 | 100·5 | 37·1 | 14,961 | 23·4 |
| Trysil or koro-balli | 19.0 | 69·0 | 33·7 | 10,036 | 15·7 |
| Kurakai | 19·7 | 75·0 | 38·8 | 5,111 | 8·0 |
| Kauta | 18·0 | 90·0 | 34·1 | 4,646 | 7·3 |
| Baramalli | 19·5 | 114·0 | 39·8 | 3,903 | 6·1 |
| Kauta-balli | 20·0 | 58·7 | 40·5 | 3,066 | 4·8 |
| Arara or black yarri-yarri. | 20·0 | 28·2 | 22·8 | 2,230 | 3·5 |
| Aramatta | 21·0 | 59·0 | 36·8 | 2,137 | 3·3 |
| Bariri-kutshi | 25·5 | 44·2 | 34·2 | 1,951 | 3·0 |
| Waikey (various species) | 26·0 | 62·0 | 40·2 | 1,951 | 3·0 |
| Corkwood | 20·0 | 40·0 | 25·3 | 1,859 | 2·9 |
| Parakusan | 28·7 | 220·0 | 46·1 | 1,766 | 2·8 |
| Aroa-dan or tiger wood | 24·0 | 39·0 | 33·0 | 1,487 | 2·3 |
| Crabwood | 53·0 | 82·0 | 71·1 | 1,022 | 1·6 |
| Sura-danni | 23·7 | 52·0 | 39·2 | 1,022 | 1·6 |
| Maporokong | 52·0 | 129·2 | 82·5 | 927 | 1·5 |
| Silver-balli (various spp.) | 33·0 | 62·5 | 49·7 | 836 | 1·3 |
| Haimara-kutshi | 23·2 | 66·0 | 39·5 | 743 | 1·2 |
| Maho | 34·7 | 75·0 | 32·5 | 743 | 1·2 |
| Moro-balli or sand mora | 22·7 | 45·0 | 36·1 | 743 | 1·2 |
| Arakadak | 48·0 | 58·5 | 53·6 | 650 | 1·0 |
| Mora | 49·7 | 54·0 | 51·9 | 558 | 0·9 |
| Wadaduri | 31·5 | 49·7 | 41·8 | 558 | 0·9 |
| Hurawassa | Single trees. | | 53·5 | 557 | 0·9 |
| Halichi-balli | | | 64·0 | 465 | 0·7 |
| Assapoka | | | 37·8 | 465 | 0·7 |
| Yuwanarow | | | 36·4 | 465 | 0·7 |
| Dukalli | | | 19·5 | 372 | 0·6 |
| Duka | | | 55·0 | 372 | 0·6 |
| Fotui or phooti | | | 58·0 | 279 | 0·4 |
| Itikiboura-balli | | | 38·0 | 279 | 0·4 |
| Forward ... | ... | ... | ... | 81,121 | 126·9 |

## APPENDIX FORM NO. 7—(CONTINUED.)

TYPE 12.—*Class 1.*—Combination of 10 Sectional Surveys.—(Contd.)

| Vernacular Names. | Girths of trees in Sections. | | | Estimated number of trees in a Square Mile. | Number of trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Forward ... | ... | ... | ... | 81,121 | 126·9 |
| Olu ... ... ... ... | Single | trees. | 27·2 | 279 | 0·4 |
| Kabukalli ... ... .. | | | 24·7 | 279 | 0·4 |
| Doro ... ... .. | | | 25·7 | 279 | 0·4 |
| Wallaba (soft) ... ... | | | 21·2 | 279 | 0·4 |
| Karahura ... .. ... | | | 49·7 | 279 | 0·4 |
| Waramia ... ... ... | | | 21·7 | 279 | 0·4 |
| Shera-bulli-balli or naidu ... | | | 24·0 | 186 | 0·3 |
| Simarupa ... ... ... | | | 28·2 | 186 | 0·3 |
| Mora-balli ... ... ... | | | 25.5 | 186 | 0·3 |
| Baramanna ... ... | | | 91·0 | 186 | 0·3 |
| Wanasoro ... ... ... | | | 40·0 | 186 | 0·3 |
| Trees (the names of which were unobtainable) ... | 21·2 | 84.5 | 48·7 | 3,996 | 6·2 |
| | Average | girth ... | 40·9 | 87,721 | 137·0 |

## APPENDIX FORM No. 8.

## INSPECTION OF FORESTS—BRITISH GUIANA.

TYPE 13.—*Class 4.*—Combination of 12 Sectional Surveys.

*District*—North Western District.

*Locality*—Forest District No. 3, Barama-Waini.

*Conditions*—Forests clothing the plains and hills of the slightly elevated country.

| Vernacular Names. | Girths of trees in Sections. | | | Estimated number of trees in a Square Mile. | Number of trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Kakaralli . | 19·0 | 84·0 | 35·8 | 24,626 | 38·4 |
| Haiari-balli ... .. | 18·2 | 97·8 | 41·1 | 9,796 | 15·3 |
| Kauta-balli ... | 19·5 | 72·3 | 34·3 | 6,273 | 9·8 |
| Mora | 20·5 | 120·0 | 50·1 | 5,692 | 8·9 |
| Baramalli | 20·0 | 87·8 | 63·5 | 4,685 | 7·3 |
| Trysil or koro-balli .. | 19·3 | 59·5 | 36·2 | 4,646 | 7·2 |
| Kauta ... ... | 18·5 | 72·0 | 33·5 | 4,569 | 7·1 |
| Kurakai . | 18·0 | 60·0 | 32·0 | 3,020 | 4·7 |
| Kairu-balli ... ... | 21·0 | 37·5 | 26·0 | 2,594 | 4·1 |
| Wallaba (soft and Ituri) .. | 18·0 | 55·2 | 36·4 | 2,478 | 3·9 |
| Parakusan ... ... .. | 20·5 | 114·5 | 57·7 | 2,091 | 3·3 |
| Silver-balli (various spp) | 44·5 | 59·7 | 54·2 | 1,704 | 2·6 |
| Maho | 22·0 | 54·0 | 36·5 | 1,471 | 2·3 |
| Moro-balli | 20·3 | 35·0 | 28·3 | 1,394 | 2·2 |
| Wadaduri | 21·0 | 53·0 | 29·9 | 1,316 | 2·0 |
| Haimara.kutshi | 27·0 | 99·0 | 41·4 | 1,316 | 2·0 |
| Aramatta | 22·0 | 60.0 | 38·2 | 1,123 | 1·8 |
| Waikey . | 32·5 | 54·0 | 48·3 | 1,084 | 1·7 |
| Aroa-dam . | 20·3 | 55·0 | 34·9 | 1,007 | 1.6 |
| Buhurada .. . | | | 54·3 | 1,007 | 1·6 |
| Yaruru . | 31·5 | 95·0 | 66·6 | 929 | 1·5 |
| Bara-bara (hill) ... .. | 44·5 | 74·3 | 49·4 | 929 | 1·5 |
| Bariri-kutshi ... | 23·5 | 114·0 | 42·1 | 891 | 1·4 |
| Assapoka ... .. | 48·0 | 61·5 | 54·7 | 852 | 1·3 |
| Mora-balli ... . | 19·2 | 34·0 | 26·8 | 774 | 1·2 |
| Crabwood .. . | 54·0 | 74·0 | 58·4 | 736 | 1·1 |
| Yuwanarow . . | 26·8 | 45·0 | 34·2 | 736 | 1·1 |
| Bara-danni .. | 51·3 | 104·0 | 91·0 | 697 | 1·1 |
| Baramanna .. . | 24·2 | 37·3 | 33·9 | 658 | 1·0 |
| Doro ... .. ... | 25·0 | 60·0 | 42·5 | 619 | 1·0 |
| Kaiarima ... . | 21·0 | 42·0 | 35·3 | 619 | 1·0 |
| Itiki-boura-balli ... | | | 43·3 | 619 | 1·0 |
| Karahura ... . | 23·0 | 40·0 | 27·4 | 619 | 1·0 |
| Simarupa ... ... .. | 20·0 | 51·0 | 35·5 | 465 | 0·7 |
| Shera-bulli-balli or naidu . | 22·3 | 27·0 | 26·9 | 465 | 0·7 |
| Forward .. | ... | .. | .. | 92,500 | 144·4 |

## APPENDIX FORM NO. 8—(CONTINUED.)

TYPE. 13.—*Class 4.*—Combination of 12 Sectional Surveys.—(Contd.)

| Vernacular Names. | Girths of trees in Sections. | | | Estimated number of trees in a Square Mile. | Number of trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Forward .. | ... | ... | ... | 92,500 | 144·4 |
| Yarri-yarri (black) ... ... | 20·0 | 20·0 | 20·0 | 465 | 0·7 |
| Halichi-balli ... .. | 66·5 | 87·3 | 76·8 | 465 | 0·7 |
| Dukalli .. ... .. | Single | Trees. | 92·6 | 387 | 0·6 |
| Wadara ... .. | | | 73·5 | 387 | 0.6 |
| Siba-danni ... | | | 33·6 | 348 | 0·5 |
| Purple heart | | | 33·2 | 310 | 0.5 |
| Kumara-mara | 23·0 | 23·5 | 23·2 | 310 | 0·5 |
| Humatuba ... .. | 28·0 | 51·3 | 34·2 | 310 | 0.5 |
| Arakadak ... ... | Single | trees. | 43·2 | 232 | 0·4 |
| Koyetchi ... .. | | | 41·0 | 232 | 0·4 |
| Duka ... | | | 27·7 | 232 | 0·4 |
| Maporo-kong | | | 48·5 | 232 | 0.4 |
| Wanasoro ... ... | | | 57·0 | 232 | 0·4 |
| Fukadi ... | | | 20·0 | 232 | 0·4 |
| Kulashiri ... .. ... | | | 25·0 | 155 | 0·2 |
| Kakirio (a guava) .. | | | 23·0 | 155 | 0·2 |
| Male bullet tree .. | | | 24·0 | 155 | 0·2 |
| Sarebebe ... | | | 35·5 | 116 | 0·2 |
| Kilikowa or hill dalli | | | 23·8 | 116 | 0·2 |
| Mari-mari ... .. | | | 22·2 | 116 | 0·2 |
| Fotui or phooti | | | 53·5 | 116 | 0·2 |
| Awasakola ... ... | | | 35·5 | 116 | 0·2 |
| Trees (the names of which were unobtainable) .. | 20·0 | 66.5 | 32·2 | 4,685 | 7·3 |
| | | | | 102,604 | 160·3 |
| | Average | girth .. | 41.0 | | |

## APPENDIX FORM No. 9.

## INSPECTION OF FORESTS—BRITISH GUIANA.

TYPE 14—*Class* 4.—Combination of 10 Sectional Surveys.

*District*—North Western District.

*Locality*—Forest District No. 3, Barama—Waini.

*Conditions*—Forests clothing the plains of the slightly elevated country.

| Vernacular Names. | Girths of trees in Sections. | | | Estimated number of trees in a Square Mile. | Number of trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girths. | Mean of Girths. | | |
| Kakaralli ... ... ... | 21·0 | 74·0 | 38·9 | 21,931 | 34·3 |
| Kauta-balli ... .. ... | 18·0 | 71·5 | 38·6 | 11,709 | 18·3 |
| Haiari-balli .. ... ... | 21·0 | 95·3 | 48·2 | 8,828 | 13·8 |
| Trysil or koro-balli | 19·0 | 48·0 | 28·5 | 6,691 | 10·5 |
| Baramalli ... ... ... | 21·5 | 80.3 | 34·1 | 3,717 | 5·8 |
| Kairu-balli ... ... ... | 19·5 | 40·0 | 25·1 | 3,530 | 5·5 |
| Baramanna | 21·5 | 50·0 | 33·8 | 2,788 | 4·4 |
| Wallaba (soft and ituri) ... | 19·5 | 68·3 | 37·6 | 2,323 | 3·6 |
| Kurakai ... .. ... | 21·5 | 55·0 | 35·3 | 2,223 | 3·6 |
| Mora .. .. . | 27·0 | 85·0 | 57·0 | 1,951 | 3·0 |
| Maho . .. ... | 23·5 | 58·0 | 48·4 | 1,858 | 2.9 |
| Aramatta .. . ... | 23·0 | 40·5 | 27·5 | 1,673 | 2·6 |
| Assapoka .. .. . | 34·0 | 57·0 | 47·3 | 1,394 | 2·2 |
| Karahura ... | 40·5 | 57·5 | 48·5 | 1,394 | 2·2 |
| Buhurada ... ... .. | 46·5 | 87·8 | 64·4 | 1,208 | 1·9 |
| Mora-balli or sand mora | 30·5 | 63·8 | 4[illegible]·5 | 1,208 | 1·9 |
| Haimara-kutshi ... ... | 27·0 | 60·0 | 44·2 | 1,022 | 1·6 |
| Bariri-kutshi ... ... | 20·3 | 36·5 | 30·4 | 1,022 | 1·6 |
| Morabukea ... ... ... | 44·0 | 60·0 | 55·0 | 836 | 1·3 |
| Crabwood ... ... ... | 28·2 | 69·0 | 47·7 | 836 | 1·3 |
| Silver-balli (various spp) ... | 28·5 | 33·0 | 30·2 | 836 | 1·3 |
| Purple heart ... ... | | | 77·3 | 743 | 1·2 |
| Parakusan ... ... ... | 30·0 | 43 5 | 36·7 | 558. | 0·9 |
| Fotui or phooti ... ... | 25·0 | 41·2 | 33·1 | 558 | 0·9 |
| Arawiwa ... ... ... | Single | Trees. | 21·2 | 558 | 0·9 |
| Yuwanarow .. .. . | | | 43·6 | 558 | 0·9 |
| Kauta ... ... ... | 21·3 | 40·3 | 30·7 | 558 | 0·9 |
| Bara-bara (hill) ... ... | Single | Trees. | 45·0 | 558 | 0·9 |
| Itiki-boura-balli ... ... | | | 36·5 | 558 | 0 9 |
| Kununa-balli ... ... | | | 31·9 | 558 | 0·9 |
| Waikey ... ... ... | 21.5 | 26·0 | 23·7 | 558 | 0·9 |
| Doro... ... ... ... | 25.0 | 26·7 | 25·8 | 558 | 0·9 |
| Kulishiri ... ... ... | | | 24·8 | 558 | 0·9 |
| Dautaraba ... ... ... | 26.3 | 36·0 | 31·0 | 558 | 0 9 |
| Velvet seedtree ... ... | 18.0 | 35.0 | 25·5 | 558 | 0·9 |
| Forward ... | ... | ... | ... | 87,075 | 136·0 |

## APPENDIX FORM No. 9.—(CONTINUED.)

TYPE 14.—*Class 4.*—Combination of 10 Sectional Surveys.—(Contd.)

| Vernacular Names. | Girths of trees in Sections. | | | Estimated number of trees in a Square Mile. | Number of trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Forward ... | ... | ... | ... | 87,075 | 136·0 |
| Marisi-balli ... ... ... | | | 30·8 | 558 | 0·9 |
| Aroa-dan or tiger wood ... | 23·2 | 48·0 | 35·6 | 558 | 0·9 |
| Wadaduri ... ... ... | Single | trees. | 26·0 | 279 | 0·9 |
| Balata-balli or barta-balli | | | 75·2 | 279 | 0·4 |
| Yaruru ... ... ... | | | 24·0 | 279 | 0·4 |
| Locust or simiri ... ... | | | 95·0 | 279 | 0·4 |
| Maporokong ... ... | | | 22·0 | 279 | 0·4 |
| Kabukalli ... ... ... | | | 39·0 | 279 | 0·4 |
| Kaiarima ... ... ... | | | 25·2 | 279 | 0·4 |
| Siba-danni ... ... ... | | | 42·2 | 279 | 0·4 |
| Halichi-balli ... ... | | | 19·5 | 279 | 0·4 |
| Mora-balli ... ... ... | | | 19·5 | 279 | 0·4 |
| Male bullet tree ... ... | | | 43.0 | 279 | 0·4 |
| Mabua (broad leaf) .. | | | 28·0 | 279 | 0·4 |
| Tatuba ... ... ... | | | 47·3 | 279 | 0·4 |
| Karahura ... ... ... | | | 33·5 | 279 | 0·4 |
| Arakadak ... ... ... | | | 81.0 | 279 | 0·4 |
| Assakola ... ... ... | | | 22.5 | 186 | 0·3 |
| Wanasoro or trumpet tree | | | 21.5 | 186 | 0·3 |
| Trees (the names of which were unobtainable) ... | 18·5 | 100·0 | 42.0 | 4,089 | 6·4 |
| | | | | 96,837 | 151·3 |
| | Average | girth ... | 39·1 | | |

## APPENDIX FORM No. 10.

### INSPECTION OF FORESTS—BRITISH GUIANA.

TYPE 15—*Class 4.*—Combination of 4 Sectional Surveys.

*District*—North Western District.

*Locality*—Forest District No. 3, Barama—Waini.

*Conditions*—Forests clothing the plains and hills of the slightly elevated country.

| Vernacular Names. | Girths of trees in Sections. | | | Estimated number of trees in a Square Mile. | Number of trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Wallaba (soft) .. | 20·0 | 77·0 | 38·1 | 34,383 | 53·7 |
| Bullet or balata tree ... | 21·0 | 156· | 37·4 | 9,525 | 14·9 |
| Kauta-balli ... ... ... | 20·0 | 63·0 | 36·6 | 8,363 | 13·1 |
| Kairu-balli ... ... .. | 21·0 | 27·0 | 22·3 | 4,182 | 6·5 |
| Kakaralli ... ... .. | 28·5 | 56.0 | 39·6 | 4,182 | 6.5 |
| Fukadi ... ... ... | 37.5 | 72·0 | 51·9 | 3,020 | 4·7 |
| Balata-balli ... ... ... | 28.5 | 61·0 | 43·3 | 2,323 | 3·6 |
| Mora-balli ... ... ... | 20·0 | 31·0 | 23·9 | 2,323 | 3·6 |
| Yaruru ... ... ... | 19·5 | 70·0 | 42·6 | 2,091 | 3·3 |
| Baramalli ... ... ... | 22·0 | 60·0 | 32·8 | 1,859 | 2·9 |
| Silver-balli (yellow) .. | 19·7 | 46·5 | 32·8 | 1,859 | 2·9 |
| Karahura ... .. .. | 39·0 | 52·0 | 47·0 | 1,626 | 2·6 |
| Moro-balli .. ... ... | 31·0 | 48·5 | 40·3 | 1,394 | 2·2 |
| Yellow wood ... ... | 33·5 | 38·0 | 35·7 | 1,161 | 1·8 |
| Marisi-balli ... ... ... | 22·0 | 39·0 | 30·5 | 1,161 | 1·8 |
| Silver-balli (yekuru) ...... | 25·0 | 27·5 | 26·2 | 1,161 | 1·8 |
| Kauta ... ... ... | 43·0 | 46·0 | 44·5 | 929 | 1·5 |
| Kakatara-balli ... ... | 27·2 | 40·2 | 33·7 | 929 | 1·5 |
| Silver-balli (boragié) ... | 20·5 | 59·7 | 40·1 | 929 | 1·5 |
| Sand mora ... ... ... | Single | trees | 25·0 | 697 | 1·1 |
| Male bullet tree ... ... | | | 45·0 | 697 | 1·1 |
| Buhurada ... ... ... | | | 60·5 | 697 | 1·1 |
| Parakusan | | 102 | | 465 | 0·8 |
| Kurakai ... ... ... | | | 34·0 | 465 | 0·7 |
| Wanasoro or trumpet tree | | | 21·5 | 465 | 0·7 |
| Kununa-balli ... ... | | | 42·5 | 465 | 0·7 |
| Wallaba (ituri) ... ... | | | 30·0 | 465 | 0·7 |
| Hurawassa ... ... ... | | | 67·0 | 465 | 0·7 |
| Kumatuba ... ... ... | | | 41·2 | 465 | 0·7 |
| Trees (the names of which were unobtainable) ... | 22·0 | 72·0 | 37·5 | 4,879 | 7·6 |
| | | | | 93,625 | 146·3 |
| | Average | girth | 40·8 | | |

## APPENDIX FORM No. 11.

## INSPECTION OF FORESTS—BRITISH GUIANA.

Type 16.—*Class 4.*—Combination of 10 Sectional Surveys.

*District*—North Western District.

*Locality*—Forest District No. 4, Waini--Pomeroon, (within the Waini basin).

*Conditions*—Forests clothing the plains and hills of the slightly elevated country.

| Vernacular Names. | Girths of trees in Sections. | | | Estimated number of trees in a Square Mile. | Number of trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Kakaralli ... ... ... | 19·5 | 75·0 | 35.8 | 20,769 | 32·4 |
| Kauta-balli ... | 20·7 | 68·0 | 35·1 | 10,593 | 16·6 |
| Haiari-balli ... ... ... | 20·0 | 97·0 | 44·6 | 6,551 | 10·2 |
| Baramalli ... ... ... | 22·5 | 120·2 | 39·6 | 5,111 | 8·0 |
| Kurakai ... ... ... | 20·0 | 57·0 | 34·1 | 5,065 | 7·9 |
| Wallaba (soft) ... ... | 34·3 | 90·0 | 49·4 | 3,206 | 5·0 |
| Mora-balli ... ... ... | 19·0 | 36·5 | 27·0 | 2,276 | 3·6 |
| Trysil or koro-balli ... | 24.0 | 66·0 | 35·7 | 2,230 | 3·5 |
| Baramanna ... ... ... | 26·0 | 58·0 | 32·9 | 2,044 | 3·2 |
| Kairu-balli ... ... ... | 19·0 | 31·5 | 24·2 | 1,998 | 3·1 |
| Mora ... ... ... | 21·5 | 100·0 | 67·2 | 1,812 | 2·8 |
| Parakusan ... ... ... | 21·5 | 115·7 | 52·7 | 1,673 | 2·6 |
| Yaruru ... ... ... | 25·0 | 98·5 | 53·4 | 1,487 | 2.3 |
| Kabukalli ... ... ... | 25·0 | 143·0 | 61·5 | 1,487 | 2·3 |
| Doro ... ... ... | 36·0 | 49·0 | 40·9 | 1,115 | 1·8 |
| Halichi-balli ... ... | 22·5 | 58·2 | 40·2 | 1,115 | 1·7 |
| Buhurada ... ... ... | 28·2 | 168·0 | 104·0 | 1,022 | 1·6 |
| Assapoka ... ... ... | 21·0 | 66·7 | 43·1 | 883 | 1·4 |
| Maho ... ... ... | 21·5 | 37·0 | 29·4 | 836 | 1·3 |
| Ariwiwa ... ... ... | 25·8 | 29·2 | 27·2 | 836 | 1·3 |
| Yuwanarow ... ... ... | 30·5 | 48·0 | 37·8 | 836 | 1·3 |
| Yarri-yarri (black) ... | 21·7 | 30·0 | 25·0 | 836 | 1·3 |
| Silver-balli (various spp.) ... | 27·2 | 39·5 | 33·9 | 743 | 1·2 |
| Bara-bara (hill) ... ... | 43·7 | 49·2 | 46·5 | 743 | 1·2 |
| Bariri-kutshi ... ... | 21·5 | 28·6 | 22·9 | 650 | 1·0 |
| Crabwood ... ... ... | 35·0 | 102·5 | 68·7 | 558 | 0·9 |
| Waikey ... ... ... | 35·0 | 53·0 | 44·0 | 558 | 0·9 |
| Shera-bulli-balli or naidu ... | 21·5 | 24·8 | 23·1 | 558 | 0·9 |
| Kokeriti-balli ... ... | 47·0 | 48.0 | 47·5 | 558 | 0·9 |
| Pelu ... ... ... | 31·5 | 76·0 | 53·7 | 558 | 0·9 |
| Akariposong ... ... | Single | trees. | 46·5 | 558 | 0·9 |
| Bara-danni ... ... ... | | | 55·1 | 464 | 0·7 |
| Aros-dan ... ... ... | | | 26·7 | 418 | 0·7 |
| Kaiarima ... ... ... | | | 58·9 | 372 | 0·6 |
| Maporokong ... ... | | | 36·5 | 372 | 0·6 |
| Forward ... | | | | 80,891 | 126·6 |

## APPENDIX FORM NO. 11—(CONTINUED.)

TYPE 16.—*Class 4.*—Combination of 10 Sectional Surveys.—(Contd.)

| Vernacular Names. | Girths of trees in Sections. | | | Estimated number of trees in a Square Mile. | Number of trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Forward ... ... | | ... | ... | 80,891 | 126·6 |
| Arara yarri-yarri ... ... | Single | trees. | 32·0 | 279 | 0·4 |
| Hurawassa ... ... ... | | | 62·0 | 279 | 0·4 |
| Black balata ... ... | | | 192·0 | 279 | 0·4 |
| Warunana ... ... ... | | | 42·2 | 279 | 0·4 |
| Kirikowa or hill dalli ... | | | 27·5 | 279 | 0·4 |
| Purple heart or kurubu-relli ... ... ... | | | 39·0 | 279 | 0·4 |
| Haiowa or sibu ... ... | | | 21·5 | 279 | 0·4 |
| Kumara-mara ... ... | | | 20·0 | 279 | 0·4 |
| Siba-danni ... ... ... | | | 21·0 | 279 | 0·4 |
| Tatuba ... ... ... | | | 65·0 | 279 | 0·4 |
| Kauta ... ... ... | | | 31·0 | 279 | 0·4 |
| Kakotara-balli ... ... | | | 25·0 | 186 | 0·3 |
| Kwaiama (white) ... ... | | | 53·0 | 186 | 0·3 |
| Trees (the names of which were unobtainable) ... | 21·8 | 108·0 | 50·0 | 1,719 | 2·7 |
| | | | | 86,051 | 134·3 |
| | Average | girth .. | 44·6 | | |

## APPENDIX FORM No. 12.

### INSPECTION OF FORESTS—BRITISH GUIANA.

**Type** 17—*Class 4.*—Combination of 6 Sectional Surveys.

*District*—North Western District.

*Locality*—Forest District No. 4, Waini—Pomeroon, path from Issororo to Mariwaru, Waini river.

*Conditions*—Forests clothing the plains and hills of the slightly elevated country.

| Vernacular Names. | Girths of trees in Sections. | | | Estimated number of trees in a Square Mile. | Number of trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Kakaralli ... ... ... | 18.0 | 64·0 | 34·0 | 29,668 | 46·4 |
| Kauta-balli ... ... ... | 21·0 | 65·0 | 39·3 | 11,279 | 17·6 |
| Haiari-balli... .. .. | 21·7 | 73·8 | 38·2 | 10,491 | 16·4 |
| Kairu-balli ... ... .. | 22·0 | 36·5 | 26·0 | 4,594 | 7·2 |
| Trysil or koro-balli . | 25·2 | 50·0 | 40·5 | 4,259 | 6·6 |
| Yaruru ... ... . | 30·0 | 53·2 | 46·5 | 2,039 | 3·2 |
| Wallaba ... .. .. | 23·5 | 67·5 | 43·1 | 1,910 | 3·0 |
| Aroa-dan or tiger wood . | 26·2 | 30·5 | 28·5 | 1,858 | 2·9 |
| Baramalli ... ... . | 31·5 | 46·0 | 41·0 | 1,729 | 2·7 |
| Assapoko .. .. .. | 23·0 | 67·0 | 43·1 | 1,574 | 2·5 |
| Black balata .. | 103·0 | 204·0 | 159·5 | 1,510 | 2·3 |
| Kurakai . | 24·0 | 25·2 | 24·7 | 1,394 | 2·2 |
| Ariwiwa ... .. . | 23·7 | 26.5 | 24·4 | 1,265 | 2·0 |
| Waikey . .. | 24·0 | 30·0 | 26·0 | 1,265 | 2·0 |
| Halichi-balli | 26·0 | 28·0 | 27·0 | 929 | 1·5 |
| Mora-balli ... | 20·7 | 28·3 | 24·2 | 929 | 1·5 |
| Bara-danni ... | 88·7 | 108·0 | 98·3 | 929 | 1·5 |
| Maho . | 28·5 | 67·5 | 48·0 | 929 | 1·5 |
| Siba-danni .. | 22·0 | 48·2 | 35·1 | 774 | 1·2 |
| Wadaduri | 43·7 | 64·0 | 53·8 | 619 | 1·0 |
| Kauta | | | 26·2 | 465 | 0·7 |
| Haimara-kutshi .. | Single | trees. | 27·0 | 465 | 0·7 |
| Kokeriti-balli .. | | | 40·5 | 465 | 0·7 |
| Kaiarima | | | 39·0 | 465 | 0·7 |
| Maporokong ... | | | 75·0 | 465 | 0.7 |
| Baramanna ... ... ... | | | 40·2 | 465 | 0·7 |
| Yarri-yarri, black ... ... | | | 20·0 | 465 | 0·7 |
| Mora ... ... | | | 90·0 | 400 | 0·6 |
| Aramatta ... ... ... | | | 22·0 | 400 | 0·6 |
| Coffee mortar or naharu . | | | 60·0 | 400 | 0.6 |
| Sura-danni ... ... | | | 34·0 | 400 | 0·6 |
| Crabwood .. .. ... | | | 54·0 | 400 | 0·6 |
| Kuyama, black .. ... | | | 31·2 | 310 | 0·5 |
| Wanasoro ... ... ... | | | 25·5 | 310 | 0·5 |
| Kokotara-balli ... ... | | | 20·0 | 310 | 0·5 |
| Trees (the names of which were unobtainable) | 21 0 | 53·0 | 29·8 | 4,452 | 6·9 |
| | | | | 90,581 | 141·5 |
| | Average | girth | 42·6 | | |

## APPENDIX FORM No. 13.

## INSPECTION OF FORESTS—BRITISH GUIANA.

TYPE 18.—*Class 4.*—Combination of 6 Sectional Surveys.
*District*—North Western District.
*Locality*—Forest District No. 4, Waini—Pomeroon, (within the Pomeroon river basin).
*Conditions*—Forests clothing the plains and hills of the slightly elevated country.

| Vernacular Names. | Girths of trees in Sections. | | | Estimated number of trees in a Square Mile. | Number of trees per Acre. |
|---|---|---|---|---|---|
| | Smallest Girth. | Largest Girth. | Mean of Girths. | | |
| Kakaralli ... | 21·0 | 86·0 | 43·2 | 27,150 | 42·4 |
| Kauta-balli ... ... ... | 26·5 | 48·0 | 36·4 | 7,200 | 11·3 |
| Haiari-balli... ... ... | 22·0 | 88·0 | 41·7 | 6,900 | 10·8 |
| Mora ... ... ... | 25·0 | 90·0 | 50·6 | 5,400 | 8·4 |
| Trysil or koro-balli | 23·5 | 69·0 | 42·4 | 5,100 | 8·0 |
| Parakusan ... | 24·0 | 150·0 | 62·3 | 2,850 | 4·5 |
| Kurakai ... ... ... | 23·0 | 60·0 | 41·2 | 2,400 | 3·8 |
| Kairu-balli ... ... ... | 28·0 | 29·5 | 28·7 | 2,400 | 3·8 |
| Yaruru ... ... ... | 33·0 | 113·0 | 78·7 | 2,250 | 3·5 |
| Ruli ... | 27·0 | 37·0 | 31·2 | 1,800 | 2·8 |
| Bullet or balata tree ... | 98·5 | 149·0 | 119·6 | 1,800 | 2·8 |
| Assapoka ... ... ... | 26·0 | 43·5 | 31·3 | 1,500 | 2·4 |
| Baramalli ... ... ... | 21·0 | 74·5 | 54·3 | 1,350 | 2·1 |
| Wallaba (soft and Ituri) ... | 56·0 | 96·0 | 62·1 | 1,350 | 2.1 |
| Crab-wood ... ... ... | 21·0 | 77·0 | 67·4 | 1,200 | 2·0 |
| Haimara-kutshi | 22·0 | 48·5 | 35·2 | 1,200 | 2·0 |
| Surulu-borieng ... ... | 23·5 | 38·0 | 30·7 | 750 | 1·2 |
| Kilikowa or hill dalli ... | | | 23·2 | 750 | 1·2 |
| Red cedar or kurana* ... | | | 90·0 | 600 | 0·9 |
| Siba-danni... ... ... | | | 41·5 | 600 | 0·9 |
| Maho ... ... ... | | | 54·0 | 600 | 0·9 |
| Assakola ... ... ... | | | 39·0 | 600 | 0·9 |
| Attachi ... ... ... | | | 27·0 | 600 | 0·9 |
| Mora-balli ... ... ... | 22·0 | 28.5 | 25·2 | 300 | 0·5 |
| Bariri-kutshi .. ... | 26·0 | 28·5 | 27·2 | 300 | 0·5 |
| Wadaduri ... ... ... | 30·0 | 39·5 | 34·7 | 300 | 0·5 |
| Silver-balli (Sirua-balli) | 42·0 | 43·0 | 42·5 | 300 | 0·5 |
| Aramatta ... ... ... | Single | trees. | 34·0 | 150 | 0·2 |
| Tibikushi ... ... ... | | | 25·0 | 150 | 0·2 |
| Sarebebe ... ... ... | | | 44·0 | 150 | 0·2 |
| Kibihi-dan ... ... ... | | | 173·0 | 150 | 0·2 |
| Locust or siniri ... ... | | | 95·0 | 150 | 0·2 |
| Yawari-dan ... ... ... | | | 26·0 | 150 | 0·2 |
| Kakotara-balli ... ... | | | 23·0 | 150 | 0·2 |
| Duka ... ... .. | | | 60·0 | 150 | 0·2 |
| Ichiki-boura-balli ... ... | | | 27·0 | 150 | 0·2 |
| Bara-danni ... ... ... | | | 173·0 | 150 | 0·2 |
| Waikey (shirada) ... ... | | | 39·5 | 150 | 0·2 |
| Seraba-danni ... ... | | | 39·5 | 150 | 0·2 |
| Trees (the names of which were unobtainable) | 33·0 | 60·0 | 48·7 | 2,400 | 3·7 |
| | | | | 81,750 | 127·7 |
| | Average | girth ... | 49·2 | | |

* Generally very widely scattered.